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ABSTRACT

This document describes a database of information for those who want to learn more about current efforts to redesign assessment to match changing goals for students and instruction. The database contains descriptive information on alternative assessments in science and mathematics that cover all grade levels, levels of assessment (classroom to national), and purposes. This document contains the following information: (1) content of the database, including definitions; (2) information about how to use the database, including hardware and software requirements, and how to load, search, and print information from the database; (3) the form used to collect information on the assessments in the database; (4) a sample evaluation form that can be used to review and analyze the assessments in the database; (5) summary descriptive information on the assessments in the database; (6) samples of reports that can be printed from the database; and (7) an index and annotated bibliography of the 189 entries in the database. (MKR)

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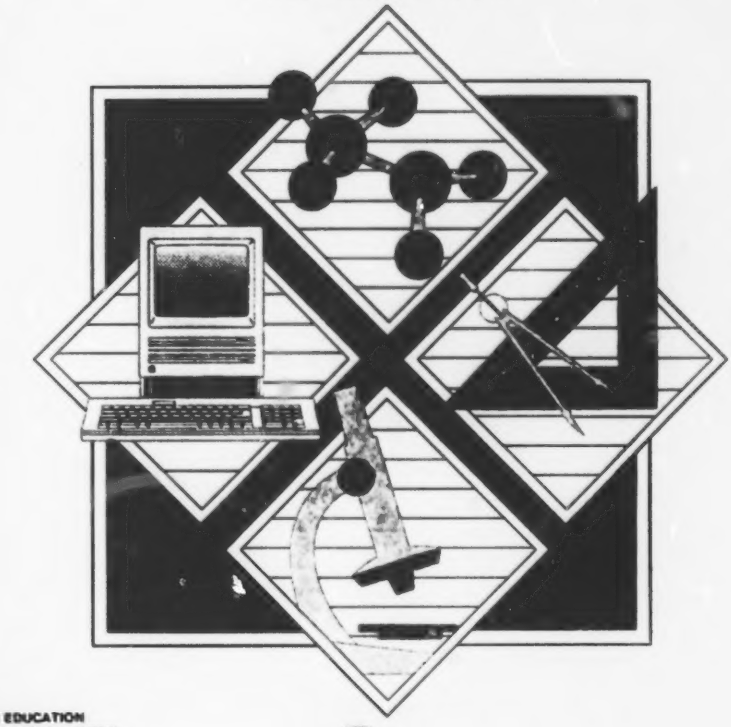
ED 379 151

Improving Science and Mathematics Education

A Database and Catalog of Alternative Assessments

Second Edition
September 1994



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Improving Science and Mathematics Education

A Database and Catalog of Alternative Assessments

Second Edition

September 1994

By:

Regional Educational Laboratory Network Program
on Science and Mathematics Alternative Assessment

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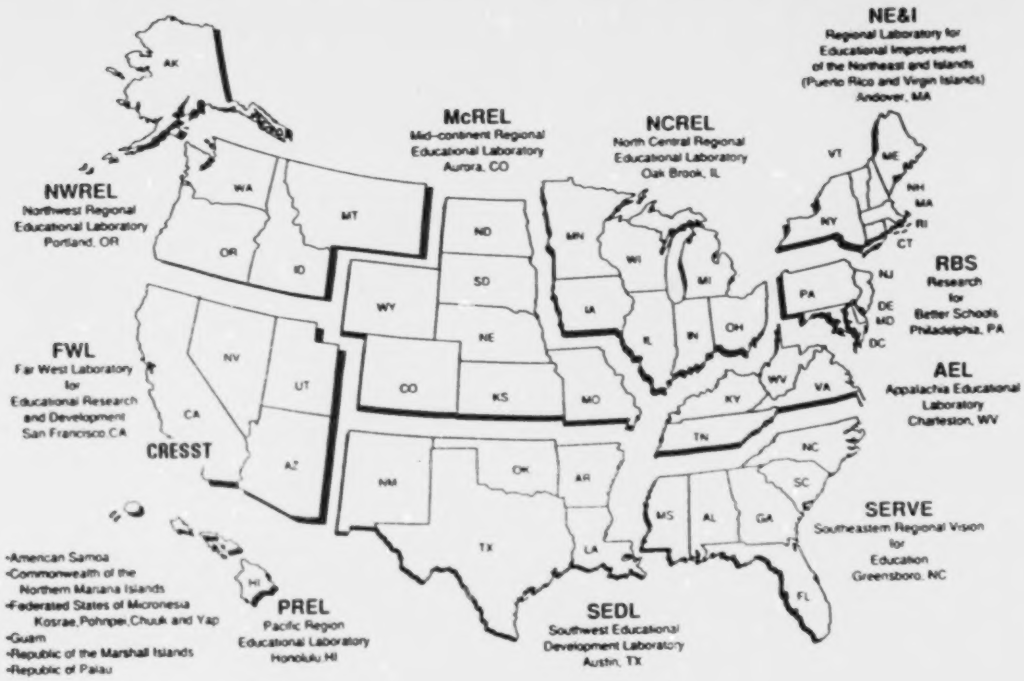
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this work would not have been possible.

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Chapter 1

Introduction

Background

The story of education in the 90's continues to be one of reform and change. In the old, and much of the existing system of education, teachers are providers of knowledge and students are passive receptacles of that knowledge. Current thinking holds that good instruction engages students actively in the learning process.

What is important to learn is also changing. In the past, knowing lots of facts was important, whereas today with information doubling every three years, students need to know how to access the information they require and apply it to increasingly ambiguous, real-life problems. Students will face many situations where there will be no clear-cut right answer, but where, instead, they will need to analyze the situation and apply their knowledge and skills to finding a solution that will work. While knowledge and facts are still needed by students, it is the emphasis on these things which is changing.

Much of traditional assessment measured facts and skills in isolation, less frequently requiring students to apply what they know and can do to real-life situations. As the curriculum and instruction of the schools change, so too must the way we assess student learning. Lack of change in the assessment of student learning can actually get in the way of reform. For example, good teachers who are making changes in the way they teach students and in the things they emphasize in their curriculum are often judged on the basis of assessment results that show how well their students have memorized facts and can recognize right answers. What kind of reinforcement do teachers receive for making the necessary changes in classroom practice if the outcomes assessed by the tests do not cover the full range of our desired outcomes?

For these reasons, educators and educational researchers are working to change their assessment of student achievement in science and mathematics to reflect changes in the expectations/standards of students, methodologies and purposes of assessment, and instruction that assessment is intended to support.

Purposes and Audience

The intent of the database described in this document is to provide information to those who want to learn more about current efforts to redesign assessment to match our changing goals for students and ideas about instruction. The database contains descriptive information on alternative assessments in science and mathematics that cover all grade levels, levels of assessment (classroom to national), and purposes. Developers include teachers, school districts, state departments of education, national governments, universities, and other research and development institutions.

Specifically, the purposes of the database are to:

- increase access to information about alternative assessments
- provide ideas
- provide a resource for staff and assessment developers

The most appropriate users are assessment specialists, curriculum coordinators and others responsible for developing alternative assessments.

Please note that the database contains only information *about* the assessments. Actual copies of the assessment instruments themselves are available from the contact people listed at the front of this document.

Content and Use of This Document

This document contains the following information:

1. The content of the database, including definitions (Chapter 2)
2. Information about how to use the database, including hardware and software requirements (Chapter 3), and how to load, search, and print information from the database (Chapters 3 and 4)
3. The form used to collect information on the assessments in the database (Appendix A)
4. A sample evaluation form that can be used to review and analyze the assessments in the database (Appendix B)
5. Summary descriptive information on the assessments in the database (Appendix C)
6. Samples of reports that can be printed from the database (Appendix D)
7. An index and annotated bibliography that briefly describe each of the entries in the database (Appendix E)

The information in the database and Appendix E is intended to inform users of current science and mathematics alternative assessment projects. We encourage the use of the database and catalog as a method to share information about alternative assessments. As such, we ask that you respect the copyright restrictions that may be included with certain assessment instruments and that you respect the time and effort of the developers as you gather additional information from them. In addition to the developers listed in the database and catalog, we encourage you to contact the persons listed at the front of this document. They are also prepared to respond to your questions regarding these instruments. Some of these persons also have copies of the instruments to loan for examination purposes.

The Regional Educational Laboratory Network

During the nearly three decades since their inception, the regional educational laboratories (funded by the Office of Educational Research and Improvement of the U.S. Department of Education) have proven to be valuable resources in their regions. Each laboratory identifies regional needs and develops resources to help meet them. In cooperation with partners in the state and intermediate education agencies, universities, professional associations, foundations, business and other social service agencies, the laboratories provide programs and services to schools and others working to improve education.

In 1992, the Regional Educational Laboratory Network was established in recognition of the growing need for coordinated national responses to America's educational challenges and the potential of the laboratories working collaboratively to help meet this need. All ten have joined together to formalize, consolidate, and extend their capability to act as a national system.

The structure for achieving this goal is a set of collaborative projects, staffed and supported by all or a subset of the regional laboratories. Each project has an originating (or "lead") laboratory which provides a project coordinator. The coordinator forms a steering committee (called the design team) to shape the project plan and activities. Collaborating laboratories then provide one or more staff, usually part-time, to help carry out the project.

The content emphases of the projects are mathematics and science, communications development, system building, and underserved populations. Examples of current project topics are:

- alternative assessment database
- professional development toolkit
- Native American education promising practices
- teaching cases professional development
- multimedia school improvement resource system
- urban and early childhood networks
- sharing promising and proven practices

In addition, the laboratories have developed a national telecommunications network, wherein each is a node on the Internet. Databases, communication links, and other services are available for school improvement.

This publication comes from one of the Regional Educational Laboratory Network Programs--the Laboratory Network Program on Science and Mathematics Alternative Assessment (LNP-AA).

The specific goals for the LNP-AA are:

1. Combine existing collections and databases of alternative assessment instruments, ideas and approaches in science and mathematics, and search out new additions to the collection
2. Develop a way to describe these instruments so that instruments relevant to individual users can be easily found
3. Develop training materials so that users will have a basis for making good decisions about alternative assessment instruments, both as consumers and developers
4. Explore ways to make the actual instruments themselves, as well as information about the instruments, available to users

How Were the Assessments in the Database Collected?

Previous collections of science and mathematics instruments were merged. Additionally, each laboratory was responsible for searching out other assessment initiatives in its own region. Labs followed a variety of search mechanisms from blanket mailings to targeted phone calls. At a minimum, every state department of education was contacted. Labs contacted almost 1,500 individuals by mail or by phone.

Finally, there was additional collection at the national and international levels. The following was done:

1. Journal searches from 1989 to the present
2. Database searches in ERIC, dissertation abstracts, Educational Index, Buros, and Tests
3. Letters and phone calls to over 100 colleges, universities, research centers, professional organizations, and other national and international sites
4. Letters to and catalog searches of 16 publishers of educational assessments

Some educators graciously submitted actual assessment materials, while others kindly described their efforts using the descriptive form in Appendix A. After sample assessments were collected, they were screened using the general criteria described above. All data entry was done by Network participants. Even if an author filled out the descriptive form, we reviewed it for consistency with other entries.

Completed entries were printed from the database and sent to authors for comment. Changes were made as needed.

Related Products

The LNP-AA also has available the following related products and services:

1. **Toolkit.** This handbook can be used as a stand-alone document or as a tool for professional development. It contains information and activities about the rationale for alternative assessment of science and mathematics skills, vision building on what it means to integrate assessment and instruction, a review of the current state-of-the-art in science and mathematics alternative assessment, and guidance on the characteristics of sound alternative assessment. Many sample assessment ideas are used to illustrate the points made in the chapters and used as part of exercises and activities. For training purposes, trainer instructions and hard copies of overheads are provided.

2. **Annotated Bibliographies.** Articles related to alternative assessment in science and mathematics, but not appropriate for the database, are collected in annotated bibliographies. Articles include such things as the rationale for alternative assessments and what we should teach/assess.

3. **Assessment Instruments.** Some laboratories (see the contact list at the front of this document) have hard copies of the instruments in the database available for examination. (If you want to actually use one of the assessments you must contact the developer.)

4. **Internet.** All LNP-AA products are available on the Internet by accessing NWREL's gopher server, which is available to anyone who has the capability to telnet or to use Gopher or World Wide Web client software. Access routes routinely expand and change. This information is current as of September 1994.

   Using Telnet

   If using dial-up access, set terminal emulation to: VT100
   Telnet to: gopher.nwrel.org
   At the Logon, enter: Gopher

   Using a Gopher Client such as HGopher for Windows or TurboGopher for the Macintosh

   Set Gopher Address to: gopher.nwrel.org
   Set Port to: 70

   Using a World Wide Web Client such as Mosaic, MacWeb, or Lynx

   Set URL to: gopher://gopher.nwrel.org/

Chapter 2

Database Content

Definitions

The following terms are used throughout this document.

Screen: What you can see on your monitor at any one time. We use the term, for example, in the following way: "The information on an instrument is too lengthy to fit on a single screen; there are actually nine screens for each instrument."

Field: A place where a piece of information is stored. Each screen contains lots of information. Each piece of information is stored in a field. For example, there is a set of fields in which we can indicate the purpose(s) for the instrument. There is another set of fields in which we can indicate information about the availability of the instrument.

Record: All the information about a single instrument. In our case, each record contains nine screens. We can use the term like this: "Let's find all the records that cover sixth grade science."

Format: The layout of the screens, fields and reports.

Report: A program that allows you to get information out of the database. The report is designed to find specific information from each record and print it out in a specified format. There are four pre-programmed reports for this database. One of them, for example, allows you to print just the contact information and a description of the instrument in alphabetical order by title.

What's in the Database?

We didn't want to put too many restrictions on the alternative assessments collected for the database because we wanted to be able to show a wide variety of approaches and purposes. Therefore, we used a broad definition of alternative assessment:*

---

*Note: Even though the database emphasizes alternative assessment, we do not want to imply that only alternative assessments are worthwhile and all previous assessment efforts are worthless. Actually, no single assessment approach can accomplish all our goals for assessment. We need to build a balance by carefully considering all the types of things we want to assess and the reasons we want to assess them, and then choosing the assessment approach that best matches our targets and purposes. Sometimes the answer will be an alternative assessment, and sometimes the answer will be multiple-choice. An interesting historical note is that 60 years ago multiple-choice was considered a more "objective" alternative to the current assessment of the time--teacher-based judgment. Now,

> *Alternative assessment includes any type of assessment in which students create a response to a question rather than choosing a response from a given list (such as multiple-choice, true/false, or matching). Alternative assessments can include short answer questions, essays, performances, oral presentations, demonstrations, exhibitions, and portfolios.*

Inclusion of "enhanced" multiple-choice tests was left to the discretion of the person entering the information about an instrument, since enhanced multiple-choice often includes other, more open-ended activities such as selecting an answer and then explaining why that answer was chosen, or selecting all the answers that are correct.

Our major selection criteria for inclusion in the database were that the instrument, technique, or procedure has:

1. Performance criteria or another specified way of evaluating student performance on the tasks given to them. Methods could include: right/wrong scoring, assignment of points for "correctness" of response, checklists of features of responses, and rating scales using professional judgment.

2. Either tasks that students are to perform or specification of the circumstances under which information would be collected about students. For example, in math, students might be asked to solve certain problems in a group. Or, students might be observed during the course of regular lab activities in science.

The information about each instrument was collected on the form provided in Appendix A: *Descriptive Information Protocol*. This form was designed to reflect the major components of an alternative assessment: tasks, performance criteria and context. The **task** is the activity or assignment given the students or trainees. Student responses to the task are what is assessed. For example, tasks could be such things as math problems, labs, groups projects, or portfolios. Tasks can be described by content, what students have to do, how the task is presented to students (verbally, in writing, etc.), how students work together, and how students produce their responses.

Performance criteria are used to judge the performance made by students in response to the task. For example, we could judge performance on a math problem by whether or not the student got the right answer, what processes the student used to arrive at his or her answer, how well the student was able to express what he or she did, or how well the student interacted with others during the solution process.

The **context** of the alternative assessment describes such things as: purpose, grade levels, and reporting requirements.

"alternate" is used to mean assessments *other than* multiple-choice, true/false, and matching. The concerns about "objectivity," however, are still the same as 60 years ago. The goal now is to make alternative assessment as objective as possible.

The boxes below contain the specific information about tasks, performance criteria and context you'll find in the database. The information and numbers in parentheses refer to sections of the *Descriptive Information Protocol* (Appendix A) that correspond to what you'll see on each screen of the database.

Screens 1-4: Background Information

Screen 1 provides contact information on who developed the instrument.

Screen 2 presents a written summary of the instrument or procedure (2E).

Screen 3 contains assessment purpose (1A) and student grade levels (1B).

Screen 4 covers student populations for whom the assessment was developed (1C) or with whom the assessment has been used (1D).

Screens 5-6: Tasks That Students Perform

Screen 5 shows content coverage (2A), cognitive skills required (2B), presentation mode (2C) and grouping (2D).

Screen 6 has format of the response (3A-3B), and administration conditions (4A-4E).

Screens 7-8: Scoring

Screen 7 covers records required to provide a score (5A), who scores (5B), and type of rating/scoring (5C).

Screen 8 describes what is rated/scored (5D), other aspects of scoring (5E), and backup materials for scoring (5F).

Screens 8-9: Reporting, Technical Information, and Availability

Screen 8 covers reporting (6A and 6B).

Screen 9 presents developmental status (7A), technical information available on the instrument (7B), sample materials available (7C), estimated costs (7D), and availability (7E).

What About Evaluative Information on the Assessments?

So far we have been discussing descriptive information only. But, what about the quality of the instruments? Evaluative information on individual instruments is not yet included in the database. There were several reasons for this. First, different features of assessments are more or less important depending on individual user's purpose, resources, expertise and needs. Second, many of the assessments are exploratory and are still being developed. Third, a major reason for the collection is to give people ideas. If we left out everything that wasn't fully pilot-tested and validated, there would be little there.

Rather, we decided to handle the quality issue by developing training materials to help users become good consumers of alternative assessments. These training materials are contained in a related product called the **Toolkit** (available from Northwest Regional Educational Laboratory). In order to be included in the collection, however, instruments *were* screened to make sure they fit our definition of an alternative assessment and to ensure a minimum level of quality. A prototype evaluation form was developed as part of this project. It is provided in Appendix B. Training on its use is a large part of the Toolkit.

Chapter 3

Boiler Plate

Hardware/Software Requirements

The database described in this chapter operates using FileMaker Pro software from Claris. You **must** have this software to run the database. This software is available for both MS-DOS and Macintosh equipment.

MS-DOS. To run the database on an MS-DOS system you will need:

- Minimum 386SX machine
- VGA monitor
- 3 mg RAM
- Windows 3.0 or later
- FileMaker Pro for windows
- Laser printer (although reports will print on other printers, the process can be very slow)

Macintosh. To run the database on a Macintosh system you will need:

- FileMaker Pro version 2.0 for the Mac (version 1.0 will not work)
- System 6.0 or later Macintosh with a large display monitor (the database will run with a smaller display monitor, but you will not see complete database screens; you will need to scroll)
- One megabyte RAM (with system 7, 2 megabytes RAM and the system 7 tune-up installed)
- 1.2 megabyte disk space to install the FileMaker Pro application; 4 megabytes for complete installation, including Help, utilities, and sample files
- One 800k disk drive, a hard disk, or an FDHD drive
- Laser printer (while reports will print on other printers, the process can be very slow)

Loading the Database Program

Your floppy disk contains the Science and Math Alternative Assessment database. The database is called "smaadiss.fm": Science/Math Alternative Assessment (dissemination version) for FileMaker.

MS-DOS. For DOS machines, Windows and FileMaker Pro must be installed before loading the database disk. To load the database on DOS machines:

1. Install Windows and FileMaker Pro using instructions for those pieces of software.

2. Insert the database disk into the floppy drive.

3. Copy smaadiss.fm from the floppy disk to the FileMaker Pro subdirectory on your hard drive.

   (It is better to work from the hard drive than the original floppy for two reasons. First, it is faster. Second, FileMaker allows you to alter information on the database, so you should always work from a COPY of the original database.)

4. Enter Windows.

5. Click on the FileMaker icon.

6. Select smaadiss.fm from the directory. (If these file names do not appear on the directory list, you may not have entered them into the FMPro subdirectory. You can switch drives, etc. to find them.)

7. The database logo page will appear on the screen. From there you can select the option you want. Operation of these features can be found in the help screens ("?"). Operation is also described below.

Macintosh. FileMaker Pro must be installed before loading the database disk. For Macintosh systems, follow these steps to load the database:

1. Install FileMaker Pro using the instructions included with that software.

2. Insert the database disk into the floppy drive.

3. "Drag" the smaadiss.fm icon onto the desktop or into a folder on your hard drive.

4. Double-click smaadiss.fm to open the database in FileMaker Pro and wait for the database logo to appear on the screen. (If the database does not open, you may need to open the application FMPro on your hard drive. Then, from the File menu choose "open" and select smaadiss.fm.)

5. The database logo page will appear on the screen. From there you can select the option you want. Operation of these features can be found in the help screens ("?"). Operation is also described below.

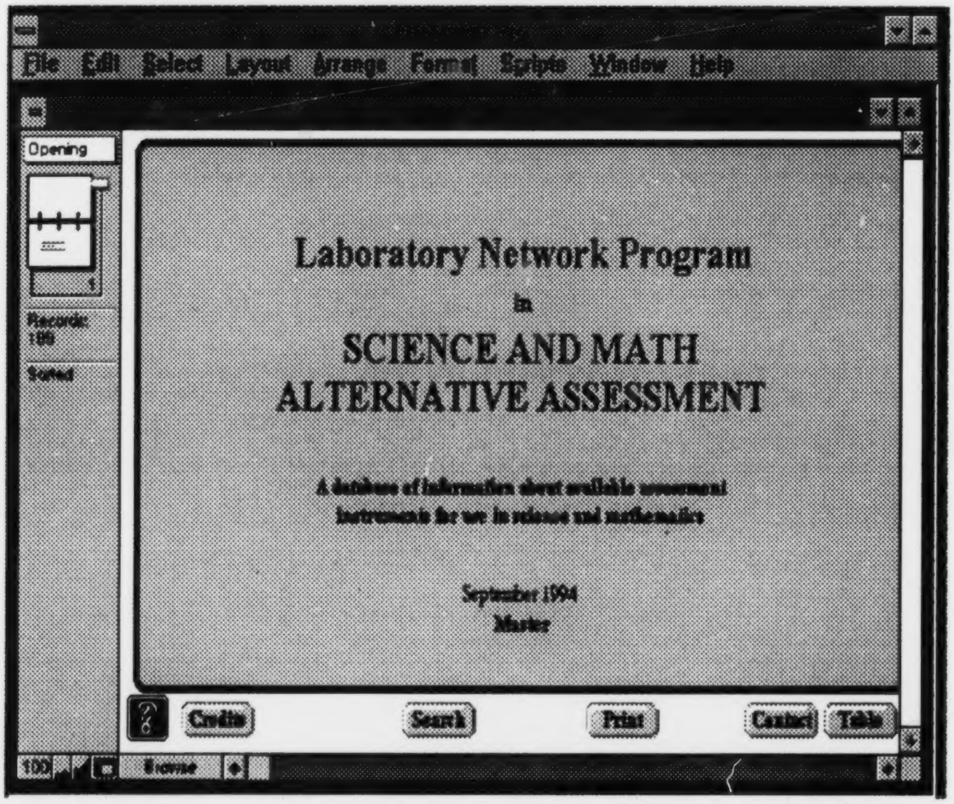
Chapter 4

How to Use the Database

Once you are in the database, use the following information to perform the operations you want.

Moving Around in the Database

Once the opening logo page appears on the screen, you can move around in the database in a number of ways. For example, you can select the option you want from the buttons at the bottom of the screen: **SEARCH, PRINT, CONTACT, TABLE,** etc. (See the figures below.) Click the **?** button for Help information about how the buttons and other features operate. (These buttons are also described in more detail on the following pages.)


File Edit Select Layout Arrange Format Scripts Window Help
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100
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A database of information about available assessment instruments for use in science and mathematics

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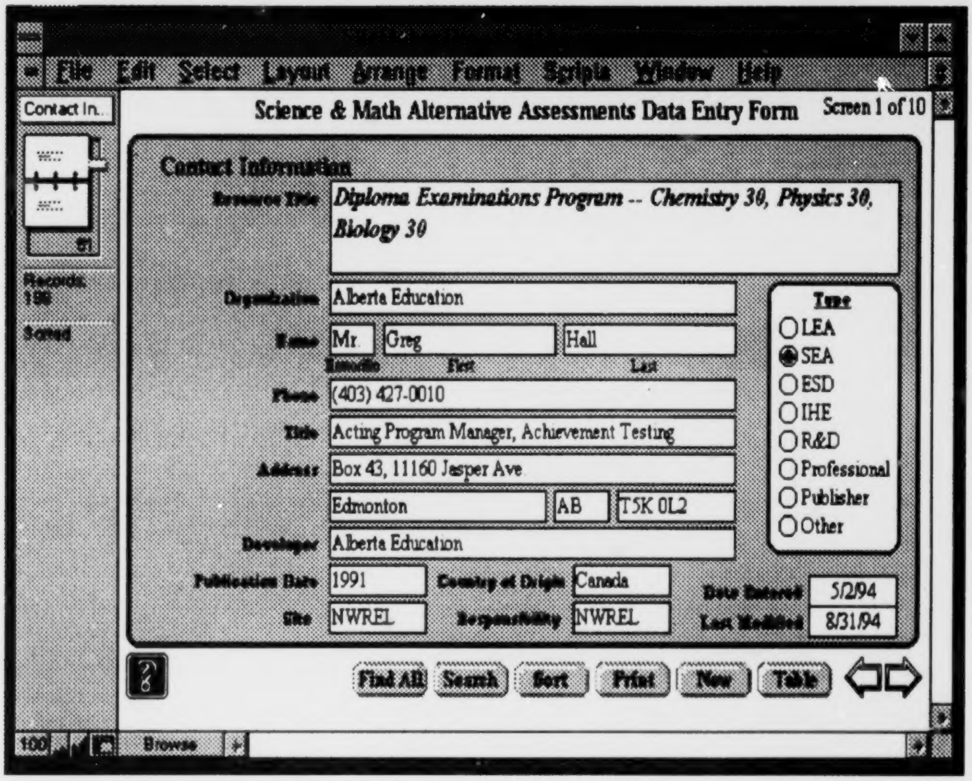

Science & Math Alternative Assessments Data Entry Form Screen 1 of 10

Contact Information

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Address	Box 43, 11160 Jasper Ave Edmonton AB T5K 0L2
Developer	Alberta Education
Publication Date	1991
Country of Origin	Canada
Site	NWREL
Responsibility	NWREL
Date Entered	5/2/94
Last Modified	8/31/94

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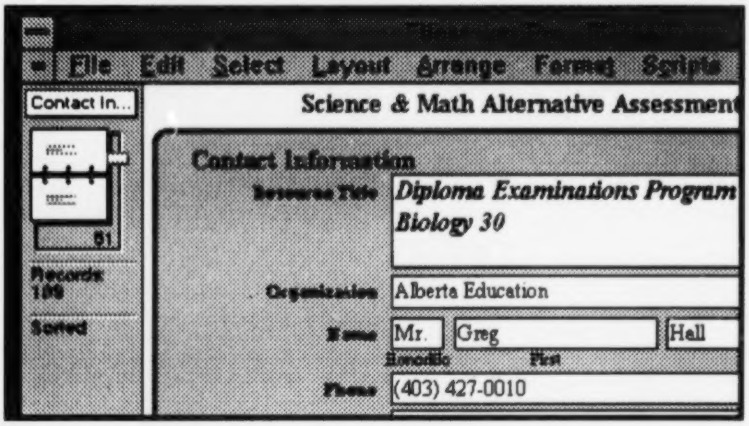
○ R&D
○ Professional
○ Publisher
○ Other

FileMaker Pro also provides additional ways to move through the database when the buttons are not showing or when you know where you want to go and want to get there quickly. In the upper left corner of the screen, notice the small "notebook pages" and the "box" above them. (See the example below.) This box contains the name of the screen you are presently viewing. (In the example below the box says "Contact In..." This means we're on the Contact Information screen.) To move quickly to another screen, put the pointer on this box and click. Choose the desired screen from the pull-down menu that appears. This will take you to all the help screens, the Table Display, and all the screens in each record. **Note: This is the only way to return to the Opening (logo) screen.**

You can get to individual records in the database from the "Table Display." Simply choose **TABLE,** click on the entry you want, and choose **CONTACT** from the buttons at the bottom. (More information on **TABLE** is provided below.)

Another way to move between records uses the notebook in the upper left corner of the screen. (See the example below.) Under the notebook is a number. (In our example, the number is "51.") This is the number of the record you are viewing -- the 51st record in the database. To move sequentially to the next record (#52), click on the lower of the notebook pages. To move to the previous record (#50), click on the upper of the notebook pages. To move to a distant record (say #5 or #90), use the small "tab pull" that is sticking out of the right side of the notebook. Click on the tab-pull and drag it up or down.



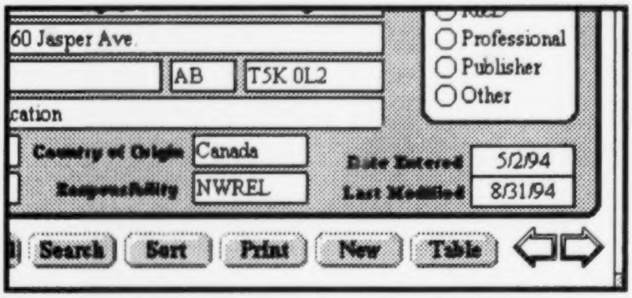
Science & Math Alternative Assessment

Contact Information

Resource Title: *Diploma Examinations Program Biology 30*
Organization: Alberta Education
Name: Mr. | Greg | Hall
Honorific | First
Phone: (403) 427-0010

Moving Around in the Records

When you have selected a record to view (from the "Table Display," by "Searching the Database," or by using the notebook in the upper left corner), you can move around in several ways. Each record in the database consists of nine screens. The arrows in the lower right corner of the screen (see below) take you to the next or previous screen. The database screens are a loop so that you can get from screen nine to screen one using the arrows.



60 Jasper Ave.
AB | T5K 0L2
cation
○ Professional
○ Publisher
○ Other
Country of Origin: Canada
Responsibility: NWREL
Date Entered: 5/2/94
Last Modified: 8/31/94

As described previously, you can also jump to any screen by clicking on the box above the notebook in the upper left corner of the screen. Then choose the screen you want from the pull-down menu. (See "Moving Around in the Database" for more information.)

You can move from field to field using the mouse or the TAB key. The TAB key takes you down the page through each field in turn. (Shift-TAB takes you backward through the fields.) The mouse allows you to jump around. Simply position the arrow on the field you want and click.

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Using the Buttons

The "buttons" on the bottom of the screens perform the following operations: (Note: not all buttons will be available on all screens.) More detail on these operations is provided in subsequent sections.

- "?" displays the help screens. These give you information on how to operate each of the other features such as **SEARCH** and **PRINT**. The Help screens repeat some of the information included below.
- **FIND ALL** lists all records in the table display.
- **SEARCH** allows you to search the database for records of interest. You can search on any field in the database.
- **SORT** allows you to put the records you have selected in any order you want. For example, you may want them arranged by state, alphabetically by title, etc.
- **PRINT** displays the Reports menu screen. There are four options for printing information from the database.
- **TABLE** displays a list of the titles and sponsoring organizations of the database entries. If you have conducted a search, only the records matching the search requirements will be in the table.
- **CONTACT** from the "opening" screen will take you to the first screen (Contact Information) of the first record in the database. **CONTACT** from the Table listing will take you to the first screen of the first record on the list. When you have clicked on an entry of interest, **CONTACT** takes you to the first screen of that entry.
- **CREDITS** from the "opening" screen provides a list of developers of the database.

Help Screens

Help screens are accessed by using "?". Help screens provide information on "Using the Buttons," "Searching," and "Printing." To exit the help screens, use **TABLE** if you want to return to a particular record, or the box above the notebook if you want to move elsewhere in the database.

Table Display

From any screen, clicking on **TABLE** takes you to a list of records. All database entries will be displayed unless you have selected a subset of the records using the **SEARCH** button.

- If you wish to look at a particular entry, click on its title and then click on **CONTACT** to get to the first screen of that record.
- The list of entries may appear to be in a random order. If you want them listed in a particular order (for example, alphabetically by organization) use the **SORT** command.
- If you have done a search and then wish to once again have all records displayed in the table, use the **FIND ALL** button.

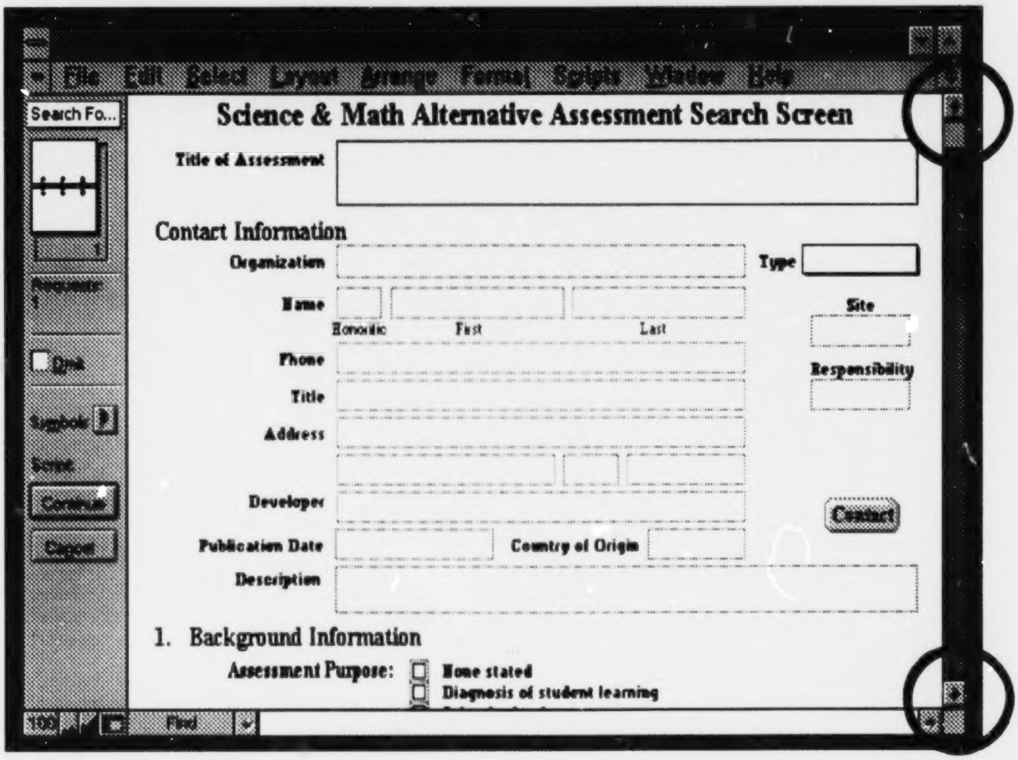
Searching the Database

You can search the database records on any information field, and you can search on multiple fields at the same time. You can do both AND searches and OR searches, and you can do both at the same time. (In addition, partial string searches are possible from any field. For example, if you want to find all records that have "high school" in the title, you could simply enter *high school* in the title field.)

To begin a search, select **SEARCH**. This will bring up a blank form that looks like the first screen of the records. To scroll through the form, use the right side bar and up and down arrows (see the figure below). Select or fill in the fields on which you wish to search (as illustrated in the examples below) and click on "Continue" (left side of screen) to see a table listing of all records meeting your search specifications.

Note: If you wish to **exit the search feature**, you can:

1. Click on the **CONTACT** button at the lower right of the screen (see the figure below), or
2. If you've done a search in which no records are found, click on **CONTINUE** from the FileMaker Pro error message box that appears on the screen.


File
Edit
Select
Layout
Arrange
Format
Scripts
Window
Help
Search Fo...
Requests:
1
Omit
Symbols
Script:
Continue
Cancel
Contact
100
Find

Science & Math Alternative Assessment Search Screen

Title of Assessment

Contact Information

Organization

Type

Name

Honorific First Last

Site

Phone

Responsibility

Title

Address

Developer

Publication Date

Country of Origin

Description

1. Background Information

Assessment Purpose:
☐ **None stated**
☐ **Diagnosis of student learning**

Now let's do several sample searches.

Example 1

Sample Search on One Piece of Information

To find all instruments for grade 4:

1. Select **SEARCH** and scroll to the grade level section of the form.
2. Click on the grade 4 box.
3. Select **CONTINUE**.

All grade 4 instruments for either science or math will appear in the table listing in alphabetical order. The number of records found will be recorded on the left part of the screen ("Found" = 85 records).

Example 2

Sample "AND" Search

To find all instruments for grade 4 math (grade 4 AND math):

1. Select **SEARCH** and scroll to the grade level section.
2. Click on the grade 4 box.
3. Scroll to the "Content"* boxes (under "Description of Tasks") and click. (Mac users may need to click and hold.) Choose "Mathematics" from the pull-down menu.
4. Select **CONTINUE**.

All grade 4 math instruments will appear in the Table ("Found" = 55 records).

---

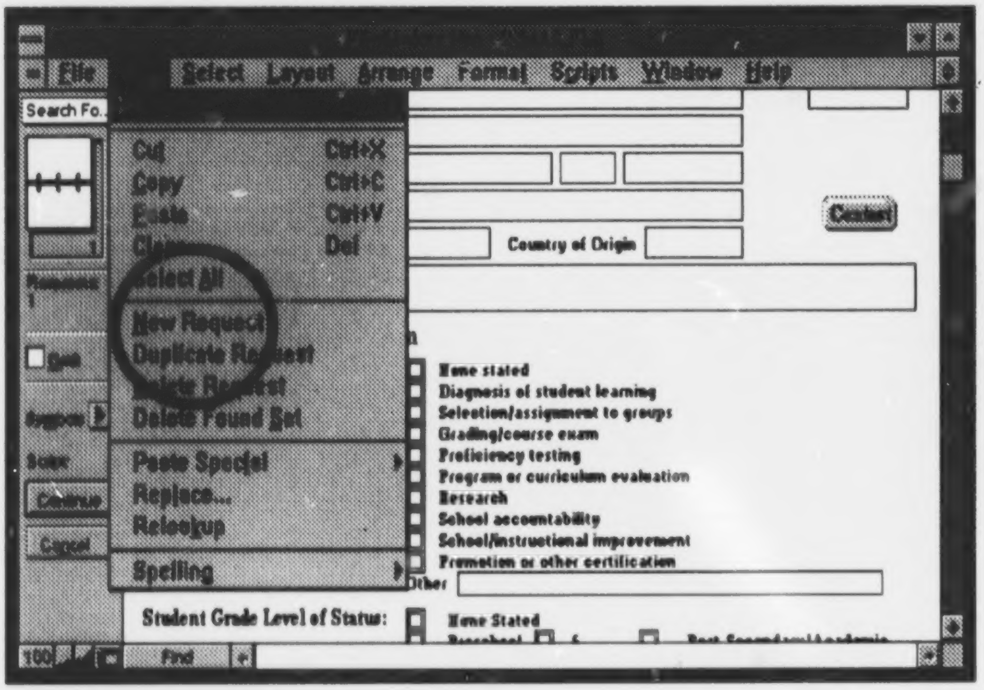
* When searching on "Content" click on any empty box, then click on the descriptor you want from the pull-down menu. Content can be entered in any box in any order.

Example 3

Sample "OR" Search

To find all instruments for either grade 4 OR grade 5.

1. Select **SEARCH** and scroll to the grade level section.
2. Click on grade 4.
3. Select "Edit" at the top of the screen and select "New Request" from the resulting pull-down menu. (See figure below.)


File
Select
Layout
Arrange
Format
Scripts
Window
Help
Search Fo...
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Clear Del
Select All
New Request
Duplicate Request
Delete Request
Delete Found Set
Paste Special
Replace...
Relookup
Spelling
Continue
Cancel
Country of Origin
Content
None stated
Diagnosis of student learning
Selection/assignment to groups
Grading/course exam
Proficiency testing
Program or curriculum evaluation
Research
School accountability
School/instructional improvement
Promotion or other certification
Other
Student Grade Level of Status:
None Stated
Find

4. Click on the grade 5 box in the grade level section.
5. Select **CONTINUE**.

All math and science assessments for either grade 4 or grade 5 (or both) will appear in the Table ("Found" = 95 records).

Example 4

Sample "AND and OR" Search Together

To find all instruments in grades 11 or 12 that have as their purpose diagnosis of student learning, follow the steps below. (This translates to: Grade 11 AND diagnosis, OR grade 12 AND diagnosis.)

1. Select **SEARCH**.
2. Go to the "Background Information: Assessment Purpose" section, and click on "Diagnosis of student learning."
3. Scroll to the grade level section.
4. Click on grade 11.
5. Select "Edit" at the top of the screen, and choose "New Request."
6. Click on "diagnosis."
7. Click on "grade 12."
8. Click on **CONTINUE**.

All math and science assessments in grades 11 or 12 that have diagnosis of student learning as their purpose will appear in the Table ("Found" = 40 records).

Sorting the Database Entries

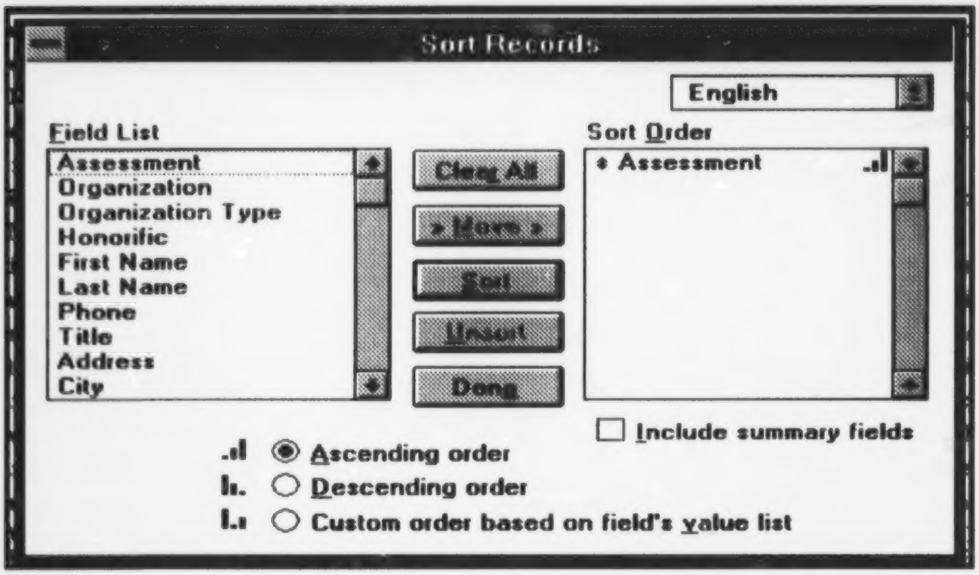
Select **SORT** to arrange the records in the Table display in a specific order. If you have, for example, selected all grade four records, only these will be sorted. You can sort on any field. To sort:

1. Select the **SORT** button.
2. Select "Clear All" from the commands in the middle of the screen. This clears previous sort commands.
3. Scroll through the field names in the "Field List" and click the first field on which you want to sort. In the example below, "Assessment" has been chosen. This command will put the Table listing in alphabetical order by title.
4. Select "Move." This enters your sort specification in the "Sort Order" box.

5. Continue selecting fields and selecting "Move" until all your sort specifications are entered.

6. Select "Sort" from the commands in the middle of the screen.

The Table will display the listing of titles sorted in the order you specified.



Field List
Assessment
Organization
Organization Type
Honorific
First Name
Last Name
Phone
Title
Address
City

Sort Order
Assessment

☐ Include summary fields

● Ascending order
○ Descending order
○ Custom order based on field's value list

Printing Reports

There are four options for printing reports. Samples of these reports are in Appendix D. They are:

- ***Titles List:*** Listing of the titles, publishers, and phone numbers of all records in the current table.

- ***Contact List:*** Listing of titles, publishers, addresses and phone numbers of all records in the current table.

- ***Contact List with Abstract:*** Annotated bibliography consisting of all the above information plus any comments that appear in the description field (screen 2) of the selected database records.

- ***Complete Record:*** A copy of the entire record for each entry in the current table. This database has "variable length fields" because the entries are not all the same length. The reports automatically adjust the printout to accommodate the number of lines in an entry. This can result in some unusual page breaks. Also, the last line on one page tends to be repeated on the next page.

Caution: Print entire records with care; printing can be very time-consuming.

To print from the database:

1. **SEARCH** to get the records you want to print. If you would like to omit any records from this list, click on the record and choose "Omit" from the "Select" menu.
2. **SORT** to get the entries in the order you want.
3. Select **PRINT**.
4. Choose the desired report.

(If you have a printer properly installed and interfaced with your computer, you should have no trouble printing. If it doesn't work, consult your FileMaker Pro manual.

To exit, click on the box above the notebook in the upper left corner of the screen and select "Table" from the pull-down menu or choose another option.

FileMaker Pro Commands

In addition to the specific button functions described above, any regular FileMaker Pro command will work with this database. Consult the FileMaker Pro manual.

APPENDIX A

Descriptive Information Protocol

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LABORATORY NETWORK PROGRAM IN SCIENCE AND MATH ALTERNATIVE ASSESSMENT

Directions for Completing Descriptive Information on Collected Instruments and Procedures

General Information

Performance assessments have three major design categories: tasks, performance criteria, and context. The **task** is the activity, assignment, prompt, etc. that students respond to in order to produce the product or behavior that is to be assessed. For example, tasks can include: labs, math problems, projects, portfolios, etc. The task can be described by its content, what kids have to do, how the task(s) are presented to students, how students work together, how students respond, etc. **Sections Two through Four of this survey describe tasks.**

The second design category is **performance criteria**. Performance criteria are used to judge the performance elicited by the task. For example, we could use any of the following types of performance criteria to judge student work or performance: holistic methods (one overall score per piece), primary trait systems (one score based on the most important feature of the work), or analytical trait systems (several scores for each performance based on different qualities deemed important). **Performance criteria are described in Section Five of this survey.**

The third design category, **context**, describes other things surrounding the performance assessment that can affect what happens. Examples are: purpose, grade levels, reports, etc. **Context is covered in Sections One, Six and Seven.**

Explanation of Fields

We're not describing all the fields in this section, only the ones that came up in discussion as needing standard entry formats, or those that might be confusing.

Contact Information. Try to complete all the contact information fields. This information will be printed out in various forms in the REPORTS. If the information is missing, blank lines and/or spaces will appear in the reports.

The codes for type of organization are:

LEA	Local Education Agency (School districts)
SEA	State Education Agency (State Departments of Ed)
ESD	Educational Service District
IHE	Institutions of Higher Education
R&D	Research & Development Institutions
Prof	Other professionals
Pub	Published material from a commercial publisher
Other	Other

Enter phone numbers using the format: (XXX) YYY-ZZZ.

Use the two-character postal codes for states and provinces.

1A-1D Check all that apply. Use the information provided by the author(s). If they stated no purpose, grade levels, or special groups, mark "none stated." Don't guess from context. However, in 1D, the information may be abstracted from studies using the instrument, as reported in technical sections of the materials.

2A-2B Performance assessments seem to be developed in one of two ways. The first way seems to emphasize the matching of the task to the targets we have for kids; the second way is to match the performance criteria to the targets we have for kids. For example, let's assume that we are designing a math performance assessment to measure problem solving. The first approach is to design a task that we believe to require problem solving. Then if the students get it right, we assume that this is an indication of their problem-solving ability. This is essentially the same logic as in multiple-choice tests, only with performance assessments the answer is generated by the student and not chosen from a list. Performance assessments that emphasize designing tasks to measure the goals we have for students often have scoring that is right/wrong or that has one assign points for various specific features of the answer (for example the presence of a bar graph designed a certain way). (See Section 5C1.)

The second approach to designing performance assessments seems to emphasize tying the performance criteria to the goals we have for students. In this case we would design tasks to elicit the right behavior, but then, instead of scoring the response right/wrong, we would rate it using a generalized holistic or analytical trait system. (See Section 5C2.) For example, Vermont's portfolio system in math uses a generalized scoring guide for rating problem solving. A generalized system had to be used because students could submit any evidence they wanted that demonstrated their problem-solving ability.

This is all by way of explaining the logic behind several of the sections in this descriptive instrument. If developers use the approach of having the task carry the load of measuring student goals, then sections 2A-2B are critical in defining what they want to measure. If developers use the approach of having the performance criteria carry the load of measuring student goals, then section 5D is critical in defining what they want to measure. That's why we have this type of descriptive information in two places.

For 2A specifically, use the attached codes to describe content. Only use codes for main headings. The sub areas are only included so that we all use the main area code consistently. "M" and "S" can be used alone if the content is not clear. (For example, in Vermont's math portfolio. students choose whatever work they want to show problem-solving ability, so content is only "M.")

2A-2B *Enter information as described by the author.* If the information is not included, mark "none stated."

2C This section describes the principal mode (visual, oral or kinesthetic) of presenting the task to students. Do they read the instructions, listen to them, or see them presented?) Some people think that presentation mode can affect how well certain students can do on the task.

2E One of the reports from the database is an annotated bibliography. The annotation is the information in field 2E. Use this field to enter any text information that you feel would be useful for people to see in a context other than this database. For example, a brief description of the grade levels, content, type of tasks, and performance criteria would be in order.

3A2 Since we requested alternative assessments, we are assuming that most of what we get will be 3A2. (3A1 is present because some sorts of enhanced multiple-choice tests may be of interest.) "Open-response" means that a task is designed to have only one right answer. "Open-ended" responses refer to tasks where there can be multiple correct "answers."

"Short answer" refers to such response modes as fill-in-the-blank or single short response. There is no hard and fast rule for when a response becomes an "extended response" because it has as much to do with the cognitive load of the response as its length. Use the comment field after 3B if a choice needs to be explained.

3B Responses to performance tasks often emphasize one mode of responding over others. Do students write their responses, state them orally, or physically demonstrate what they can do? The way students are required to respond can affect how well they can do (for example, written responses for ESL students).

4E One reviewer of this descriptive instrument commented that it seems to assume that assessment is an "event" and that it leaves out extended, curriculum-embedded tasks over time. 4E is a place to add this type of information, if it seems that the instrument cannot be described adequately by 4A-4D.

5C-5D Information in these sections is so frequently tied to how tasks are designed that it was already covered under explanations for Sections 2A, 2B, and 3A2.

5F Anchor/benchmark performances are samples of student work tied to performance criteria so that raters have "models" of what strong, weak, etc. work looks like. These are not critical for right/wrong or specific feature scoring (5C1), but are for generalized scoring (5C2).

Laboratory Network Program in

Science and Math Alternative Assessments

Descriptive Information Protocol

Contact Information:

Title of Assessment: ______________________________

Sponsoring Organization: ______________________________

Type of Organization: ___SEA ___LEA ___ESD ___IHE ___R&D ___Prof.

___Publisher ___Other: ______________________

Point of Contact:

Name: ______________________________

Phone: ______________________________
(include area code)

Title: ______________________________

Address: ______________________________

City/State/Zipcode: ______________________________

Developer: ______________________________

Publication Date: ____________________

Please return to:

Directions: **For all the following items in this protocol, please check *all* the items that apply.**

1. Background Information

1A. Assessment Purpose: (check all that apply)

____ None stated
____ Diagnosis of student learning
____ Selection/assignment to groups
____ Grading/course exam
____ Proficiency testing
____ Program or curriculum evaluation
____ Research
____ School accountability
____ School/instructional improvement
____ Promotion or other certification
____ Other:______________________________

1B. Student Grade Levels or Status (check all that apply):

____ None stated
____ Preschool
____ K
____ 1
____ 2
____ 3
____ 4
____ 5
____ 6
____ 7
____ 8
____ 9
____ 10
____ 11
____ 12
____ Post-secondary/academic
____ Post-secondary/vocational
____ Military
____ Business
____ Other: ______________________________

1C. Special Student Group(s) for Whom the Assessment Was Particularly Designed (check all that apply):

____ None stated
____ Gifted
____ Low achievers/low verbal
____ Limited English proficient
____ Ethnic/racial minorities specify:____________________
____ All students
____ Other:______________________________
____ Economically disadvantaged
____ Physically challenged
____ Emotionally challenged

1D. Special Student Group(s) with Whom the Assessment Has Been Used (check all that apply):

- ____ None stated
- ____ Gifted
- ____ Low achievers
- ____ Limited English proficient
- ____ Low verbal
- ____ Ethnic/racial minorities specify: ______________________________
- ____ Other: ____
- ____ Economically disadvantaged
- ____ Physically challenged
- ____ Emotionally challenged

2. Description of Tasks (as specified by the author - include all that apply)*

2A. Content (enter codes from attached list):

______ ______ ______ ______ ______ ______

______ ______ ______ ______ ______ ______

2B. Cognitive Skills Required

2B1. Level of skills as specified by author (check all that apply):

- ____ None stated
- ____ Knowledge
- ____ Inferences/analytic/synthesis
- ____ Evaluation

2B2. Other types of skills that authors feel are built into the tasks (check all that apply):

- ____ None stated
- ____ Scientific process (generate hypothesis, collect data, analyze results, draw conclusions)
- ____ Self monitoring
- ____ Problem solving
- ____ Critical thinking
- ____ Problem identification
- ____ Strategy selection
- ____ Principle application
- ____ Solution testing
- ____ Other: ____

2C. Principal presentation (stimulus) mode

2C1. ____ Visual (e.g., video)

2C2. ____ Oral (e.g., verbal instructions)

2C3. ____ Written (e.g., written instructions)

---

*Note: Do not confuse task characteristics with scoring criteria. For example, the task may be an open-response item in algebra, but the criteria for scoring might include processes, right answer, and perseverance.

2D. Grouping--tasks performed (check all that apply)

2D1 ____ Unspecified

2D2. ____ Individually

2D3. ____ Small group (2-5)

2D4. ____ Large group (6+)

2D5. ____ Other: ____

2E. Add a short verbal description (as necessary). Include special features not covered above (e.g., computer simulation or multiple, curriculum-embedded experiences over time) or more detail on content.

3. Student Response Characteristics

3A. Format of the Response (check all that apply):

3A1. ____ Structured (e.g., m.c., matching, t/f)

3A2. ____ Open performance (e.g., fill in blank, essay, exhibition)

Number of right answers

____ open-response (one right answer)

____ open-ended (no single right answer)

Type of Open Performance

____ short answer (fill in the blank, single short response)

____ extended response (e.g., essay, report, speech, performance, elaboration required)

____ multiple responses (e.g., portfolio)

____ other: ____

3B. Response Mode (check all that apply):

3B1. ____ Written (e.g., short answer, essay, report)

3B2. ____ Oral (e.g., short answer, speech, oral presentation, read aloud, group discussion)

3B3. ____ Visual (e.g., art, graphic, video, graph, picture)

3B4. ____ Physical performance (e.g., demonstration, domain experiment, dance, diving, playing an instrument, etc.)

3B5. ____ Other: ____

3C. Comments: ____

____

4. Administration Conditions

4A. Individual or Group Administration:

____ Group
____ Individual
____ Both

4B. Ratio of Assessment Administrators/Recordkeepers to Students:

________ to ________ students

4C. Time Requirements

Is there a time limit? ____ no ____ yes

Estimated time for administration (if individually administered, report amount of time needed for *each* student):

_____ total minutes

_____ days for administration

4D. Special Requirements

Special materials required? ____ no ____ yes

If yes, check and/or list:

____ audio tape
____ video tape
____ computer
____ lab equipment
____ other: ____

Special room or space arrangements: ____ no ____ yes

List or provide examples, e.g., multiple testing stations, outdoor area, etc.

____

4E. Other--add other information as needed:

5. Rating/Scoring

5A. Records Required to Provide a Score (check all that apply):

____ Individual student product or records
____ Group products or records
____ Observer checklists or ratings
____ Anecdotal records or notes
____ Structured protocols, completed by ________________________________
____ Computer records
____ Video records
____ Audiotape records
____ Other: ____

5B. Who Scores/Rates? (check all that apply):

____ Teacher
____ Self
____ Peer
____ Commercial/publisher
____ Other: ____________________

5C. Type of Rating/Scoring (check all that apply):

5C1. ____ Scoring tied to task (i.e., different scoring guide for each task)

____ right/wrong
____ checklist of specific features (may include assignment of different number of points for presence of specific features in the response, e.g., a line graph)
____ holistic rating based on presence of specific features
____ other ____

5C2. ____ Scoring generalized across tasks (e.g., VT's math problem-solving procedure in which the same criteria are applied across tasks)

____ checklist of general features
____ holistic (one overall rating)
____ analytical trait (holistic ratings along several dimensions)
____ other ____

5C3. ____ Other (e.g., scoring criteria not prespecified) __________________________

5D. What Is Rated/Scored? (check all that apply):

5D1. Target

____ Products (e.g., Lab report, problem solution, final answer or product)
____ Methods of production (the process by which the final product was produced, e.g., group cooperation, use of the socratic method, work habits, strategies, etc.)
____ Process skills (the procedure used to arrive at the final product, such as: classify, observe, measure, infer, communicate, experiment, scientific process)
____ Problem solving (identify relevant information, using appropriate approaches, verifying results)
____ Dispositions (flexibility, perseverance, motivation, commitment, self confidence, etc.)
____ Habits of mind (critical thinking; or being inquisitive, open-minded, logical, rational)
____ Communication
____ Development along a continuum (concrete to abstract or novice to expert)
____ Self reflection
____ Attitudes toward science or math
____ Other: ____

5D2. Describe the specific dimensions covered by the scoring criteria (e.g., a Lab report might be judged on format, clarity of presentation, and correctness of content, or a developmental continuum might have six stages and be based on Piaget).

5E. Other aspects of rating (check all that apply):

____ Individual ratings
____ Multiple ratings for each performance
____ Machine scored
____ Group ratings
____ Other: ____

5F. Backup materials for scoring (check all that apply):

____ Scoring guide
____ Anchor/benchmark performances
____ Training materials for raters
____ Other: ____

6. Reporting

6A. Source of Score Reports (check all that apply):

____ Publisher
____ Local--sample reports provided
____ Local--no sample reports provided
____ Other: ____

6B. Type of Reports (check all that apply):

____ Student
____ Classroom
____ Building/District
____ Other: ____

6C. Characteristics of Reports (e.g., group vs. individual, developmental emphasis, etc.)

7. Developmental Status of Assessment and Availability

7A. Status

____ Exploratory--no empirical data anticipated
____ Prototype under development, with data collection in process or planned
____ Final field tested version
____ In regular use. Specify for how long? ______ years
____ Other: ______________________________

7B. Available Data on the Measure (check all that apply):

____ Teacher reactions
____ Descriptive statistics/normative data (means and standard deviations)
Describe sample on which data is available
____
____ Student reactions
____ Validity studies (e.g., comparisons with other tests or judgments)
____ Rater agreement
____ Inferential statistics (power of measure for predicting other outcomes)
____ Other: ______________________________

7C. Sample Materials Available (check all that apply):

____ Manual available
____ Report available
____ Staff development and/or teaching strategies and materials
____ Other: ______________________________

7D. Estimated Administration, Scoring, and Reporting Costs (for one class, approximately 28 students)

____ ?
____ Estimated special administration costs (e.g., salaries) $ ____________
____ Material costs (e.g., equipment, test forms) $ ____________
____ Estimated scoring costs: $ ____________
____ Estimated reporting costs $ ____________

7E. Availability of the Measure

____ Publicly available at no cost
____ Publicly available, cost $ ____________
____ Available on a restricted basis. What are restrictions?________________
____
____ Only samples or prototypes are available
____ Not available
____ Other: ______________________________

Please attach samples of materials

Content Codes

M MATHEMATICS

M1 Numbers and number relations
- Sets/classification
- Whole numbers
- Ratio and proportion
- Percent
- Fractions
- Integers
- Exponents
- Decimals (incl. scientific notation)
- Real numbers (rational/irrational)
- Relations between numbers (order, magnitude)

M2 Arithmetic
- Whole numbers
- Ratio, proportion
- Percent
- Fractions
- Integers
- Decimals
- Exponents
- Radicals
- Absolute value
- Relationships between operations

M3 Measurement
- Time
- Length
- Perimeter
- Area
- Volume (incl. capacity)
- Angle
- Weight
- Mass
- Rates (incl. derived and indirect)
- Relationships between measures

M4 Algebra
- Variable
- Expressions
- Linear equations or inequalities
- Nonlinear equations or inequalities
- Systems of equations or inequalities
- Exponents or radicals
- Sequences or series
- Functions (polynomials)
- Matrices

M5 Geometry
- Points, lines, segments, rays, angles
- Relationships of lines; relationships of angles
- Triangles and properties (incl. congruence)
- Quadrilaterals (and polygons) and properties (incl. congruence)
- Similarity
- Circles
- Solid geometry
- Coordinate geometry
- Transformations (informal and formal)

M6 Trigonometry
- Trigonometric ratios
- Basic identities
- Pythagorean identities
- Solution of right triangles
- Solution of other triangles
- Trigonometric functions
- Periodicity, amplitude
- Polar coordinates

M7 Statistics
- Collecting data
- Distributional shapes (e.g., skew, symmetry)
- Central tendency (e.g., mean, median, mode)
- Variability (e.g., range, standard deviation)
- Correlation or regression
- Sampling
- Estimating parameters (point estimate)
- Estimating parameters (confidence intervals)
- Hypothesis testing

M8 Probability
- Events, possible outcomes, trees
- Equally likely--relative frequency probability
- Empirical probability (e.g., simulations)
- Simple counting schemes (e.g., combinations and permutations)
- Conditional probability
- Discrete distributions--binomial
- Discrete distributions--normal
- Continuous distributions--other

M9 Advanced Algebra / Precalculus / Calculus
- Functional notation and properties
- Operations with functions
- Polynomial functions
- Exponential functions
- Logarithmic functions
- Relations between types of functions
- Matrix algebra
- Limits and continuity
- Differentiation
- Integration

M10 Finite/Discrete Mathematics
- Sets (e.g., union, intersection, venn diagrams)
- Logic (truths values, logical argument forms, sentence logic)
- Business math (interest, insurance)
- Linear programming
- Networks
- Iteration and recursion
- Markov chains
- Development of computer algorithms
- Mathematical modeling

S SCIENCE

S1 Biology of the Cell
- Cell structure
- Cell function
- Transport of cellular material
- Cell metabolism
- Photosynthesis
- Cell response
- Genes

S2 Human Biology
- Nutrition
- Digestive system
- Circulatory system
- Blood
- Respiratory and urinary system
- Skeletal and muscular system
- Nervous and endocrine system
- Reproduction
- Human development/behavior
- Health and disease

S3 Biology of Other Organisms
- Diversity of life
- Metabolism of the organism
- Regulation of the organism
- Coordination and behavior of the organism
- Reproduction and development of plants
- Reproduction and development of animals
- Heredity
- Biotechnology
- Life cycles

S4 Biology of Populations
- Natural environment
- Cycles in nature
- Producers, consumers, decomposers: N_2, O_2, CO_2
- Natural groups and their segregation
- Population genetics
- Evolution
- Adaptation and variation in plants
- Adaptation and variation in animals
- Ecology

S5 Chemistry
- Periodic systems
- Bonding
- Chemical properties and processes
- Atomic and molecular structure
- Energy relationships and equilibrium in chemical systems
- Chemical reaction
- Equilibrium
- Organic chemistry
- Nuclear chemistry
- Environmental chemistry

S6 Physics
- Energy: sources and conservation
- Heat (content and transfer)
- Static and current electricity
- Magnetism and electromagnetism
- Sound
- Light and spectra
- Machines and mechanics
- Properties and structures of matter
- Molecular and nuclear physics

S7 Earth and Space Science
- Physical geography
- Soil science
- Oceanography
- Meterology
- Geology
- Earth's history
- Solar system
- Stellar system
- Space exploration

S8 General Science
- Nature and structure of science
- Nature of scientific inquiry
- History of science
- Ethical issues in science
- SI system of measurement
- Science/technology and society

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APPENDIX B

Alternative Assessment Evaluation Form

The following evaluation form can be used to review the quality and usefulness of alternative assessments. It represents a guide of things to look for. It is not intended that all areas necessarily be weighted equally. Some judgments may depend on the purpose for which the assessment will be used. The intent is not necessarily to get a high total or average score. However, areas receiving less than a "3" might need more attention.

Alternative Assessment Evaluation Form

	Yes	Somewhat	No
1. Coverage	3	2	1

- Clear goals, skills, content to be covered
- Alternative assessment appropriate to measure these goals
- Avoids irrelevant and/or unimportant content
- Deals with enduring themes or significant knowledge

2. Performance Criteria	3	2	1

- Performance criteria match coverage and task
- Performance criteria include everything of importance and omit irrelevant features of work
- Performance criteria are stated clearly and with detail
- There are examples of student work to illustrate the performance criteria
- Performance criteria are stated generally, especially if the intent is use as an instructional tool
- Performance criteria promote a clearer understanding of the skill being assessed

3. Tasks	3	2	1

General:

- Elicit the desired performances or work; match the performance criteria
- Recreate an "authentic" context for performance
- Are consistent with current educational theory and best practice
- Are reviewed by experts
- Are, themselves, episodes of learning

Sampling/Representativeness/Generalizability:

- Sample of performance is representative of what a student can do
- Domain covered well; generalizable

Extraneous Interference:

- Absence of factors that might get in the way of students' abilities to demonstrate what they know and can do

	Yes	Somewhat	No
4. Fairness and Rater Bias	3	2	1

- Features of performance do not influence how other, supposedly independent, features are judged
- Knowledge of the type of student does not influence judgments
- Knowledge of individual students does not affect judgments
- Task content and context are equally familiar, acceptable and appropriate for all students in group
- Assessment taps knowledge and skills all students have had adequate time to acquire in class
- As free as possible of cultural, ethnic, or gender stereotypes

5. Consequences/Validity	3	2	1

- Communicates appropriate messages
- Acceptable effects on students, teachers, and others
- Worth the instructional time devoted to it
- Exemplifies good instruction
- Provides information relevant to the decisions being made
- Will be perceived by students and teachers as valid
- Students learn something from doing the assessment and/or using the performance criteria

6. Cost and Efficiency	3	2	1

- Cost efficient
- "Practical"/"do-able"

APPENDIX C

Summary Descriptive Information

So far, the Laboratory Network Program participants have collected 199 science and mathematics alternative assessment instruments, ideas and procedures: 113 in science and 120 in math. An index and description of entries is provided in Appendix E.

Table C.1 shows that alternative assessments in science and mathematics are being developed for students in all grade levels.

Table C.1
Grade Level of Instruments

	Science	Math	Total*
PK-1	25	35	46
2-3	32	48	64
4-5	53	61	95
6-8	67	81	125
9-12	64	65	107
Total*	113	120	199

* The sum of the grade level and subject entries does not equal the totals because some instruments cover both science and math, and because some instruments cover more than one grade range. For example, the *Maryland School Performance Program* contains assessments for both science and mathematics objectives.

The breakdown by sponsoring organization is shown in Table C.2. Most of the work shared with us for the database is being done in local districts and state departments of education. There is also some work being done at institutions of higher education and research and development organizations (such as the regional educational laboratories and CRESST).

Table C.2
Sponsoring Organization of Instruments

State Departments of Education	56
School Districts	49
Research and Development Organizations	21
Institutions of Higher Education	32
Publishers	15
Other (Armed Forces, Federal Governments)	14
Professional Organizations	7
Intermediate Educational Units	5
U.S.	173
Other Countries	26
Total	199

Author-stated purposes for the collected assessments are shown in Table C.3. Overall, the most frequent purposes at the lower grades are diagnosis of student learning, school and instructional improvement, and program and curriculum evaluation. Beginning in grade 4, accountability also becomes an important purpose. Research plays a role beginning in grade 6. The same pattern can be seen in both science and math assessments.

Table C.3
Purposes of Instruments*

	PK-1	2-3	4-5	6-8	9-12	Sci.	Math	Total
Diagnosis of student learning	31	44	54	79	56	58	72	114
Selection/assignment to groups	2	5	4	8	9	2	7	12
Grading/course exam	11	14	14	29	40	34	31	57
Proficiency testing	7	13	11	16	20	16	23	31
Program/curriculum evaluation	20	27	45	53	42	40	52	75
Research	10	13	17	28	24	30	28	44
Accountability	9	17	28	32	27	18	31	43
School/instruction improvement	33	47	57	73	48	57	63	100
Promotion/certification of students	2	2	5	6	22	14	17	28
None stated	0	0	2	3	3	3	1	3
Total Instruments	46	64	95	125	107	113	120	199

*Many programs listed several purposes.

Table C.4 shows the types of skills being assessed by the instruments. A skill was designated as being assessed by an instrument if it was specifically included in the criteria for evaluating student responses. If, for example, an author stated an assessment measures group collaboration but group collaboration is not included in the performance criteria, then the instrument was not counted as assessing group collaboration. The most common skills are listed in Table C.4 below.

Table C.4

Skills Assessed

Skill	**No. of Times Assessed**
Products	130
Method of Production	31
Process Skills	93
Problem Solving	88
Dispositions	29
Habits of Mind	47
Communication	83
Development	19
Self Reflection	30
Attitudes	25

APPENDIX D

Sample Database Reports

Report 1 Titles List

Report 2 Contact List

Report 3 Contact List with Description

Report 4 Complete Record

Report 1

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Titles List

Title of Assessment	Organization	Phone
California Program for Learning Assessment -- Mathematics Performance Assessments	Riverside Publishing Company	(800) 323-9540
Collis-Romberg Mathematical Problem Solving Profiles	Australian Council for Educational Research	Australia + (03) 819-1400
End of Course Examination -- Math Production Test	D.C. Public Schools	(202) 727-2092
GOALS, A Performance-Based Measure of Achievement -- Math	Psychological Corporation	(800) 228-0752
MATHA - Mathematics Assessment: The Hoosier Alternative	Indiana Department of Education	(317) 232-9155
Mathematics Curriculum Profile	Curriculum Corporation	(03) 639-0699; FAX (03) 639-1616
Portfolio Evaluation of Writing in English, Social Studies, Mathematics, Science, and Electives for 9th and 10th Graders	Capuchino High School	(415) 583-9977
Project ABCD -- Alternative Blueprint for Curriculum Development	Texas Association for Supervision and Curriculum Development	(713) 286-3603; FAX 286-4142
Regents Three Year Sequence -- NYSTP	New York State Education Department	(518) 474-5900
Student Assessment Using Student Research Projects	New Mexico State University-Las Cruces	(505) 646-3901; FAX (505) 646-6218

Report 2

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List

Title of Assessment	Organization	Phone
California Program for Learning Assessment -- Mathematics Performance Assessments	Riverside Publishing Company	(800) 323-9540
Dr. Susan Holmes Vice President, Editorial Director 8420 Bryn Mawr Ave. Chicago , IL 60631	**Publication Date:**	1994
Collis-Romberg Mathematical Problem Solving Profiles	Australian Council for Educational Research	Australia + (03) 819-1400
Dr. Brian Doig Senior Research Fellow P.O. Box 210 Hawthorn, Victoria , Australia 3122	**Publication Date:**	1992
End of Course Examination -- Math Production Test	D.C. Public Schools	(202) 727-2092
Dr. Cynthia Almeida Assistant Director, Student Assessment Bryan Building Rm. 206, 13th and Independence Avenue S.E. Washington , DC 20003	**Publication Date:**	
GOALS, A Performance-Based Measure of Achievement -- Math	Psychological Corporation	(800) 228-0752
Mr. Roger Ziegelman Attn: National Sales Center P.O. Box 839954 San Antonio , TX 78283	**Publication Date:**	1992
MATHA - Mathematics Assessment: The Hoosier Alternative	Indiana Department of Education	(317) 232-9155
Dr. Donna Long Mathematics Supervisor, Indiana Dept. of Education State House Room 229 Indianapolis , IN 46204-2798	**Publication Date:**	Draft 9-93 FINAL 5-94
Mathematics Curriculum Profile	Curriculum Corporation	(03) 639-0699; FAX (03) 639-1616
Mr. David Francis Executive Director St. Nicholas Place, 141 Rathdowne St. Carlton, Victoria , Australia 3053	**Publication Date:**	1994

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
California Program for Learning Assessment -- Mathematics Performance Assessments	Riverside Publishing Company	(800) 323-9540

Dr. Susan Holmes
Vice President, Editorial Director
8420 Bryn Mawr Ave.
Chicago , IL 60631

Publication Date: 1994

Description: The "California Program for Learning Assessment" addresses language arts and mathematics in 8 levels for grades 3-10. The on-demand math tests are designed to be given in 45 minutes and have two parts. Part 1 contains two open-ended math problems requiring an essay response which take approximately 30 minutes to complete. Part 2 has seven enhanced multiple-choice problems which take approximately 15 minutes to complete. The test is designed to assess problem solving, application of knowledge, and communication skills rather than knowledge of specific facts or operations. The open-ended problems require written responses and are completed individually. Both open-ended and multiple-choice questions are thought-provoking.

Open-ended responses are scored using a 0 to 4-point generalized, holistic rubric where "4:" "Shows a complete understanding of the problem and addresses all relevant mathematical ideas. Exhibits sound reasoning and draws logical conclusions. Communicates clearly through the use of appropriate charts, graphs, diagrams, illustrations, and/or words. Provides computation (where required) adequate for the solution of the problem." Although somewhat sketchy, this rubric attempts to address the "big" outcomes in the NCTM standards. To help the scorer, the general rubric is tailored to each particular problem.

The materials we received mention a pilot test in 17 California schools, but no details are given. (115 pp)

Report 4

Complete Record

California Program for Learning Assessment -- Mathematics Performance Assessments

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Riverside Publishing Company — (800) 323-9540

Dr. Susan Holmes
Vice President, Editorial Director
8420 Bryn Mawr Ave.
Chicago , IL 60631

Publication Date: 1994

Developer: Riverside Publishing Company — USA

Description: The "California Program for Learning Assessment" addresses language arts and mathematics in 8 levels for grades 3-10. The on-demand math tests are designed to be given in 45 minutes and have two parts. Part 1 contains two open-ended math problems requiring an essay response which take approximately 30 minutes to complete. Part 2 has seven enhanced multiple-choice problems which take approximately 15 minutes to complete. The test is designed to assess problem solving, application of knowledge, and communication skills rather than knowledge of specific facts or operations. The open-ended problems require written responses and are completed individually. Both open-ended and multiple-choice questions are thought-provoking.

Open-ended responses are scored using a 0 to 4-point generalized, holistic rubric where "4:" "Shows a complete understanding of the problem and addresses all relevant mathematical ideas. Exhibits sound reasoning and draws logical conclusions. Communicates clearly through the use of appropriate charts, graphs, diagrams, illustrations, and/or words. Provides computation (where required) adequate for the solution of the problem." Although somewhat sketchy, this rubric attempts to address the "big" outcomes in the NCTM standards. To help the scorer, the general rubric is tailored to each particular problem.

The materials we received mention a pilot test in 17 California schools, but no details are given. (115 pp)

Background Information

Assessment Purpose:

None stated		Other:
Diagnosis of student learning	✓	Staff development
Selection/assignment to groups	___	
Grading/course exam	___	
Proficiency testing	___	
Program or curriculum evaluation	___	
Research	___	
School accountability	___	
School/instructional improvement	___	
Promotion or other certification	___	

Student Grade Levels of Status:

None stated	___	1	___	4	✓	7	✓	10	✓	Post-secondary/academic	___
Preschool	___	2	___	5	✓	8	✓	11	___	Post-secondary/vocational	___
K	___	3	✓	6	✓	9	✓	12	___	Military	___
										Business	___

Other

Special Student Groups for Whom the Assessment was Particularly Designed:

None stated ___ Other:
Gifted

California Program for Learning Assessment -- Mathematics Performance Assessments

Gifted ___
Low Achievers/low verbal ___
Limited English Proficient ___
Ethnic/racial Minorities ___
Economically disadvantaged ___
Physically disadvantaged ___
Emotionally disadvantaged ___
All ✓

Special Student Groups with Whom the Assessment Has been Used

None stated ✓ Other:
Gifted ___
Low Achievers ___
Limited English Proficient ___
Low verbal ___
Ethnic/racial Minorities ___
Economically disadvantaged ___
Physically disadvantaged ___
Emotionally disadvantaged ___

Description of Tasks

Content:

Mathematics
Statistics
Algebra
Geometry
Numbers & Number Relations
Arithmetic
Measurement

Level of Cognitive Skills Required:

None stated ___ Knowledge ✓
Inference/analytic/synthesis ✓ Evaluation ___

Other Types of Skills that Authors Feel are Built Into the Tasks:

None stated ___ Other:
Scientific process ___
Self monitoring ___
Problem solving ✓
Critical thinking ___
Problem identification ___
Strategy selection ✓
Principle application ✓
Solution testing ✓

Principal Presentation Mode: Visual ___ Oral ___ Written ✓

Grouping--Tasks Performed:

Unspecified ___ Individual ✓ Small Group ___ Large Group ___

Other

Format of the Response: Structured
Open Performance ✓

Number of Right Answers:
One Right Answer ✓

California Program for Learning Assessment -- Mathematics Performance Assessments

One Right Answer ✓
More Than One Right Answer ✓

Type of Open Performance: Other:
Short Answer ✓
Extended Response ___
Multiple Response ✓

Response Mode: Written ✓ Comments:
Oral ___ Graphs, pictures
Visual ✓
Physical performance ___

Administration Conditions

Individual or Group Administration: Group ✓ Individual ✓ Both ✓

Ratio of Assessment Administrators/Recordkeepers to Students: 1 teacher to 1 classroo

Time Requirements: Is there a time limit? Yes

Estimated time for administration: 180 Total minutes 3 Days for administration

Special Requirements:

Special materials required? No
Audio Tape ___ Other:
Video Tape ___
Computer ___
Lab Equipment ___

Special room or space arrangement No
Room Description
Other Requirements

Rating/Scoring

Records Required to Provide a Score:
Individual student product or records ✓
Group products or records ___
Observed checklist or rating ___
Anecdotal records or notes ___
Structured protocols ___ by
Computer records ___ Other:
Video records ___
Audiotape records ___

Who Scores/Rates? Teacher ✓ Other:
Self ___
Peer ___
Commercial/publisher ___

Type of Rating/Scoring:
✓ Other:

California Program for Learning Assessment -- Mathematics Performance Assessments

Task specific ✓ Other:

Right/wrong ____

Checklist of specific features ____

Holistic rating based on presence of features ✓

Scoring generalized across tasks ✓ Other:

Checklist of general features

Holistic ✓

Analytical traits ____

Other features of criticia: Generalized holistic scale tailored to specific questions.

What is Rated/Scored? Other:

Target: Products ✓

Science process skills ✓

Math problem solving ✓

Method of Production ____

Dispositions ____

Habits of mind

Communication ✓

Development along a continuum ____

Self reflection ____

Attitudes toward science and math ____

Other Aspects of Rating: Other:

Individual Ratings ____

Multiple Ratings ✓

Machine Scoring ____

Group Ratings ____

Backup Materials for Scoring: Other:

Scoring Guide ✓

Benchmark Performances ____

Training Materials ____

Reporting

Source of Score Reports: Other:

Publisher ____

Local Sample ____

Local No Sample ____

Type of Reports: Other:

Student Reports ____

Classroom Reports ____

Building/District Reports ____

Report Characteristics:

Developmental Status of Assessment and Availability

California Program for Learning Assessment -- Mathematics Performance Assessments

Status:
Exploratory ____
Prototype under development
Final field test version ✓
In regular use ____ ______ Year(s)
Other:

Available Data on the Measure:
Teacher Reactions
Data and Statistics ✓ 17 schools in CA
Student Reactions ____
Validity Studies ____
Rater Agreement ____
Inferential Statistics ____
Other:

Sample Materials Available:
Manual ✓
Report ____
Staff development materials ____
Other:

Estimated Administration, Scoring, and Reporting Costs:
Unknown Costs ✓
Administration Costs ____________
Materials Costs ____________
Scoring Costs ____________
Reporting Costs ____________

Availability of the Measure:
Publically available at no cost
Publically available with cost ✓
Restricted availablility ____
Prototype(s) only are available ____
Not available ____
Cost ____________
Restrictions ____________
Other

APPENDIX E

Index and Bibliography

The Index comprises the first six pages of Appendix E. The remainder of Appendix E is a listing of database entries with brief descriptions. Entries are printed in alphabetical order by title. You can use the Index to find instruments of interest and then get descriptions by looking up the title in the complete list.

Laboratory Network Program--Alternative Assessment Database

INDEX

			Grade Levels														Skills Assessed									
Instrument	**Science**	**Mathematics**	**Pre**	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Products**	**Method of Production**	**Process Skills**	**Problem Solving**	**Disposition**	**Habits of Mind**	**Communication**	**Development**	**Self Reflection**	**Attitudes**
1) Drawings 2) Idea Listing 3) "Word" Problems		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓			✓	
12 Schools Project	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓										
Advanced Placement Examination -- Calculus		✓													✓	✓	✓									
AIM High Math Identification		✓				✓	✓	✓	✓	✓										✓	✓		✓			
Alberta Performance-Based Assessment -- Math	✓	✓								✓			✓							✓			✓			
Alternative Assessment (La Plata Middle School)	✓										✓						✓		✓				✓			
Alternative Assessment Techniques	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Alternative Assessments in Math and Science: Moving Toward a Moving Target	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	
Arizona Student Assessment Program -- Mathematics		✓					✓					✓				✓	✓			✓		✓	✓			
Assessing Mathematical Power		✓								✓							✓		✓	✓		✓	✓			
Assessment and Technology Videotape	✓										✓	✓	✓	✓	✓		✓	✓				✓	✓		✓	
Assessment of Achievement Programme: Math		✓						✓			✓		✓				✓									
Assessment of Achievement Programme: Science	✓							✓			✓		✓				✓		✓							
Assessment of Schema Knowledge for Arithmetic Story Problems		✓																		✓						
Authentic Assessment for Multiple Users	✓						✓	✓	✓	✓									✓		✓		✓		✓	
Authentic Science Assessment Project	✓										✓						✓		✓							
Benchmarks		✓					✓			✓		✓					✓	✓	✓	✓	✓				✓	✓
Bethel Science Achievement Tests	✓							✓				✓							✓							
Biology Regents Exam -- NYSTP	✓												✓	✓	✓		✓	✓								
Biology -- Standard Grade	✓													✓	✓	✓	✓		✓	✓						
Brochures on Nuclear Chemistry	✓										✓			✓	✓		✓		✓				✓			
Business Mathematics		✓												✓	✓	✓										
Calculator Mathematics Curriculum Assessment		✓								✓	✓	✓						✓			✓	✓	✓			
California Learning Assessment System: Math		✓						✓				✓		✓			✓			✓			✓			
California Learning Assessment System: Science	✓								✓			✓		✓			✓		✓	✓			✓			
California Learning Record	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	
California Program for Learning Assessment -- Mathematics Performance Assessments		✓					✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓			✓			
Career -Technical Assessment Program	✓	✓												✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓
CAT/5 Performance Assessment Supplement	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓						
Chapter 1 - Non Standardized Measure		✓								✓	✓	✓					✓			✓			✓			
Chemistry Computer-Based Objective Assessment Tasks (COM-BOAT)	✓													✓	✓	✓	✓	✓	✓	✓						
Chemistry Regents Exam -- NYSTP	✓														✓	✓			✓							
Chemistry -- Standard Grade	✓													✓	✓	✓	✓		✓	✓						
Classroom-based Assessment in Middle School Science and Mathematics	✓	✓								✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	

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			Grade Levels														Skills Assessed									
Instrument	Science	Mathematics	Pre	K	1	2	3	4	5	6	7	8	9	10	11	12	Products	Method of Production	Process Skills	Problem Solving	Disposition	Habits of Mind	Communication	Development	Self Reflection	Attitudes
Collis-Romberg Mathematical Problem Solving Profiles		✓							✓	✓	✓	✓	✓	✓	✓	✓				✓				✓		
Common Core of Learning: Math		✓												✓			✓			✓			✓			
Common Core of Learning: Science	✓												✓	✓	✓	✓	✓		✓							
Connecticut Mastery Test: Math		✓						✓		✓		✓		✓			✓		✓	✓			✓			
Continuous Progress Assessment Form		✓		✓	✓	✓											✓			✓						
CRESST Performance Assessment Models: Assessing Content Area Explanations--Chemistry	✓													✓	✓	✓							✓			
CTB Math Task Bank		✓					✓	✓	✓	✓	✓	✓	✓				✓									
Curriculum Frameworks -- Math		✓						✓				✓				✓										
Curriculum Frameworks -- Science	✓							✓				✓				✓										
Curriculum-Based Alternative Assessment of Mathematics (CBAAM)		✓					✓			✓							✓			✓			✓			
Curriculum-Based Measurement		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓										
Developing Skills Checklist (DSC)		✓	✓	✓													✓		✓							
Developmental Assessment Project: Oregon Cadre for Assistance to Teachers of Science (OCATS)	✓	✓		✓	✓	✓	✓	✓	✓															✓		
Diagnostic Mathematics Program		✓			✓	✓	✓	✓	✓	✓							✓			✓			✓			
Diagnostic Prescriptive Teaching in Mathematics		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓					✓			✓	✓	✓	✓	✓	✓	✓
Dichotomous Key Construction	✓												✓				✓	✓		✓	✓	✓	✓	✓	✓	✓
Diploma Examinations Program -- Chemistry 30, Physics 30, Biology 30	✓															✓	✓									
Diploma Examinations Program -- Mathematics 30		✓														✓	✓									
Discovering the Problem of Solid Waste -- Performance Assessments	✓						✓	✓	✓	✓							✓									
District Achievement Levels Test (DALT): Math		✓					✓	✓	✓	✓	✓	✓					✓		✓							
Drivers Start Your Engines	✓	✓						✓	✓	✓							✓									
Earth Science Regents Exam -- NYSTP	✓											✓	✓	✓			✓		✓							
Elementary School Pre-Post Survey	✓	✓		✓	✓	✓	✓	✓	✓																	✓
Elementary Science Curriculum Evaluation	✓			✓	✓	✓	✓	✓	✓								✓		✓							
Elementary Science Program Evaluation Test ESPET	✓							✓									✓		✓							
End of Course Examination -- Math Production Test		✓									✓	✓	✓	✓	✓	✓			✓							
End of Course Examination -- Science Production Test	✓										✓	✓	✓	✓	✓	✓			✓							
Essential Competencies Certification (ECCC)	✓	✓												✓	✓	✓	✓									
Evaluating Students' Learning and Communication Processes	✓										✓	✓	✓	✓			✓		✓			✓	✓		✓	
Final Assessment: Metric Measurement, Geometry & Structures	✓	✓						✓	✓								✓	✓	✓		✓		✓			
First and Second Grade Assessment in Mathematics		✓			✓	✓											✓		✓		✓			✓		✓
Full Option Science System -- Water Module	✓									✓	✓	✓					✓									
General Exam -- SS&C Puerto Rico	✓										✓						✓									
Geometry Picture		✓						✓									✓		✓				✓		✓	✓

Instrument	Science	Mathematics	Grade Levels														Skills Assessed									
			Pre	K	1	2	3	4	5	6	7	8	9	10	11	12	Products	Method of Production	Process Skills	Problem Solving	Disposition	Habits of Mind	Communication	Development	Self Reflection	Attitudes
GOALS, A Performance-Based Measure of Achievement – Math		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓						
GOALS, A Performance-Based Measure of Achievement -- Science	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓							
Golden State Exam: Biology	✓												✓	✓	✓	✓	✓		✓	✓			✓			
Golden State Exam: Chemistry	✓												✓	✓	✓	✓	✓		✓	✓			✓			
Golden State Exam: Science Portfolio	✓												✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	
Grade 11 High School Proficiency Test (Math)		✓													✓		✓									
Grade 3-8: Patterns, Relationships, and Pre-Algebra		✓					✓	✓	✓	✓	✓	✓					✓		✓	✓						
Grade 8 Early Warning Test (Math)		✓										✓					✓									
Group Assessment of Logical Thinking (GALT)	✓	✓								✓	✓	✓	✓	✓	✓	✓	✓									
Group Problem Solving in Biology and the Environment	✓											✓	✓	✓	✓	✓		✓	✓		✓		✓			✓
Handbook for Designing Alternative Assessments in Math and Science	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓		✓	✓
Hands-on Science Process Test	✓										✓	✓							✓			✓	✓			
How I Use Portfolios in Math		✓								✓	✓	✓														
Howard County Physical Science Assessment	✓				✓	✓	✓	✓	✓								✓		✓	✓		✓	✓	✓	✓	
Indiana Performance Assessment '92		✓												✓	✓	✓			✓	✓		✓	✓			
Indiana University Student Assessment '94		✓																	✓	✓		✓	✓			
Instructional Assessments: Lever for Systemic Change	✓									✓	✓	✓					✓		✓				✓			✓
Integrated Assessment System -- Math Performance Assessment		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓			✓			
Integrated Assessment System -- Science Performance Assessment	✓					✓	✓	✓	✓	✓	✓	✓							✓				✓			
Integrated Science	✓									✓	✓	✓					✓		✓	✓			✓			
Investigating Mealworm Feeding Patterns	✓							✓	✓	✓	✓	✓					✓		✓	✓			✓			
K-5 Mathematics Program Evaluation		✓	✓	✓	✓	✓	✓	✓	✓											✓		✓	✓			
Kansas Math Assessment		✓					✓				✓			✓			✓		✓	✓			✓			
Kentucky Instructional Results Information System	✓	✓						✓				✓				✓	✓									
Key Competencies in Mathematics Assessment		✓		✓	✓	✓	✓	✓	✓								✓		✓							
Kindergarten Developmental Progress Record (KDPR)		✓		✓															✓		✓	✓	✓			
Large Group Oral Examination	✓								✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓			✓			
LEAP Grade 7 Mathematics		✓									✓									✓			✓			✓
Learning Logs	✓														✓	✓		✓		✓	✓	✓		✓	✓	✓
Level Three Mini ESPET	✓																									
Manipulative Skills Test Grade 5	✓						✓	✓	✓										✓							
Map Tests	✓												✓	✓	✓	✓	✓									
Martinello Open-ended Science Test (MOST) [Performance Task of Scientific Observation and Inferential Thinking]	✓					✓	✓	✓	✓										✓			✓				

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			Grade Levels														Skills Assessed									
Instrument	Science	Mathematics	Pre	K	1	2	3	4	5	6	7	8	9	10	11	12	Products	Method of Production	Process Skills	Problem Solving	Disposition	Habits of Mind	Communication	Development	Self Reflection	Attitudes
Maryland School Performance Assessment Program	✓	✓					✓		✓			✓			✓		✓		✓	✓		✓	✓			
Massachusetts Educational Assessment Program -- Math Open-Ended and Performance Tasks		✓						✓				✓				✓	✓	✓	✓	✓						✓
Massachusetts Educational Assessment Program -- Science Open-Ended and Performance Tests	✓							✓				✓				✓	✓		✓	✓						✓
Matching Trigonometric Graphs		✓													✓	✓	✓									
Math Assessment		✓					✓			✓		✓			✓											
MATHA - Mathematics Assessment: The Hoosier Alternative		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓										
Mathematics Assessment Questionnaire (MAQ): A Survey of Thought and Feelings for Students in Grades 7-9		✓									✓	✓	✓								✓	✓				
Mathematics Curriculum Profile		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓	✓	✓	✓	✓		✓
Mathematics: Instructional Block Assessments		✓			✓	✓	✓	✓	✓	✓	✓	✓					✓		✓			✓	✓			
Mathematics Pupil Evaluation Program -- NYSTP		✓					✓			✓							✓			✓						
Mathematics Regents Competency Test -- NYSTP		✓											✓				✓									
Mathematics -- Standard Grade		✓												✓	✓	✓	✓			✓			✓			
Measuring Up -- Prototypes for Mathematics Assessment		✓						✓									✓			✓		✓	✓			
Middle High School Pre-Post Survey	✓	✓								✓	✓	✓	✓	✓	✓	✓										✓
Minnesota Mathematics State Assessment		✓							✓			✓			✓		✓		✓	✓		✓	✓			
MOVE IT Math Concepts 1		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓										✓		✓		
Multimedia-Based Assessment Sampler of Science Process Skills	✓							✓	✓	✓	✓	✓	✓						✓	✓			✓			
NAEP: Math Assessment		✓						✓				✓				✓	✓									
NAEP: Science Assessment	✓							✓				✓				✓	✓		✓							
New Mexico High School Competency Examination	✓	✓												✓	✓	✓										
New Mexico Portfolio Writing Assessment	✓							✓		✓		✓					✓									
New Standards Project Math Performance Task Assessment		✓						✓				✓		✓			✓			✓			✓			
New York State Elementary Science Program Evaluation Test-I (ESPET) -- Manipulative Skills Test	✓	✓						✓											✓							
NIM Game Projects		✓							✓	✓	✓	✓					✓			✓			✓			
Ninth Grade Lab Skills	✓												✓				✓		✓	✓						
North Carolina Scope, Sequence, and Coordination of Science Middle School Project	✓									✓	✓	✓					✓	✓	✓	✓		✓	✓		✓	
Open-ended Science Problems for the Classroom	✓						✓	✓	✓	✓	✓	✓							✓				✓			
Options for Scoring Performance Assessment Tasks	✓				✓	✓	✓	✓	✓	✓	✓	✓					✓			✓						
Orange County LEP Assessment Task Force	✓	✓																	✓	✓		✓	✓			✓
Oregon Open-Ended Math Assessment		✓					✓		✓			✓			✓					✓			✓			
Packets Program		✓							✓	✓	✓	✓	✓				✓		✓	✓		✓	✓			
Paired Interviews	✓	✓									✓	✓	✓	✓	✓											
Performance Assessment in Science	✓												✓	✓	✓	✓	✓		✓				✓			

			Grade Levels														Skills Assessed									
Instrument	**Science**	**Mathematics**	**Pre**	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Products**	**Method of Production**	**Process Skills**	**Problem Solving**	**Disposition**	**Habits of Mind**	**Communication**	**Development**	**Self Reflection**	**Attitudes**
Performance Assessment In Science -- STS Connections	✓									✓			✓						✓	✓			✓			
Performance Assessment -- Math		✓												✓	✓	✓	✓	✓		✓			✓			
Performance Assessment Workshops in Mathematics and Science	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓		✓	✓			
Performance Assessments for the ITBS, TAP, and ITED	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓						
Performance Assessments in Biology	✓													✓	✓	✓	✓									
Performance Assessments in Science and Mathematics	✓	✓												✓	✓	✓	✓	✓				✓				
Performance Tasks in Science	✓	✓						✓				✓				✓										
Performance-Based Assessment in Science	✓							✓				✓							✓			✓				
Physics Regents Exam -- NYSTP	✓														✓	✓	✓		✓							
Physics -- Standard Grade	✓													✓	✓	✓	✓		✓	✓						
Planning for Classroom Portfolio Assessment		✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓								✓	
Portfolio Assessment		✓		✓	✓	✓	✓	✓	✓	✓																
Portfolio Assessment System -- Mathematics		✓					✓	✓	✓	✓	✓	✓					✓		✓							
Portfolio Evaluation of Writing in English, Social Studies, Mathematics, Science, and Electives for 9th and 10th Graders		✓											✓	✓			✓	✓	✓	✓			✓	✓		
Portfolio Guidelines in Primary Math		✓		✓	✓	✓	✓											✓		✓	✓		✓		✓	
Portfolio Model		✓									✓						✓						✓			
Portfolio Project	✓	✓		✓	✓	✓	✓	✓	✓																	
Portfolios	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓										
Portfolios in Science Classroom	✓																✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Process Interviews	✓	✓									✓	✓	✓	✓	✓											
Process Skills Assessment Kits	✓				✓	✓	✓	✓	✓																	
Program Evaluation Test in Science -- NYSTP	✓							✓																		
Project ABCD -- Alternative Blueprint for Curriculum Development	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Project OMEGA (Optimum Math Expectations Generated by Assessment)		✓								✓	✓	✓					✓			✓			✓			
Provincial Learning Assessment Program (Math)		✓						✓			✓			✓												
Provincial Learning Assessment Program (Science)	✓							✓			✓			✓					✓							
QUASAR Cognitive Assessment Instrument (QCAI)		✓								✓	✓	✓								✓		✓	✓			
Regents Three Year Sequence -- NYSTP		✓											✓	✓	✓	✓	✓			✓						
Regional Performance Based - Science Assessment	✓			✓	✓	✓	✓	✓	✓	✓																
Research Presentation	✓											✓							✓		✓	✓	✓		✓	
Rhode Island Portfolio Assessment Project		✓			✓	✓	✓	✓	✓	✓							✓			✓			✓		✓	
SAT Mathematics -- Student Produced Responses		✓													✓	✓	✓									
Science Curriculum Profile	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓		✓		✓		✓
Science Final Exam	✓											✓					✓						✓			
Science for Seven-Year-Olds in England and Wales	✓	✓			✓	✓											✓		✓	✓		✓	✓			

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Instrument	Science	Mathematics	Grade Levels														Skills Assessed									
			Pre	K	1	2	3	4	5	6	7	8	9	10	11	12	Products	Method of Productio	Process Skills	Problem Solving	Disposition	Habits of Mind	Communication	Development	Self Reflection	Attitudes
Science II Pre Post Test	✓											✓							✓							
Science Lab Report (PreK-8)	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓					✓								✓	
Science Performance Assessment	✓									✓		✓							✓							
Science Portfolio: Astrophysics	✓														✓	✓			✓		✓	✓			✓	✓
Science Process and Manipulative Skills Assessment	✓							✓									✓									
Science Process Evaluation Model	✓							✓	✓	✓							✓									
Science Regents Competency Test -- NYSTP	✓												✓				✓									
Science -- Standard Grade	✓													✓	✓	✓	✓		✓	✓						
Second International Assessment of Ed Progress (IAEP)	✓	✓									✓	✓					✓	✓								
Second International Science Study	✓								✓				✓			✓	✓									
Situated Performance Assessment		✓						✓	✓	✓	✓	✓					✓	✓	✓	✓						
Sixth Grade Student Learning Assessment in Mathematics		✓								✓							✓		✓	✓			✓			
Small-Scale Chemistry for Laboratory Assessment	✓													✓	✓	✓	✓	✓	✓	✓			✓			
South Dakota Mathematics Study: Grade 12		✓														✓										
South Dakota Mathematics Study: Grade 4		✓						✓																		
South Dakota Mathematics Study: Grade 8	✓	✓										✓														
Student Assessment Using Student Research Projects		✓											✓	✓	✓	✓	✓			✓	✓	✓	✓			
Student Portfolio (Algebra)		✓									✓	✓					✓		✓				✓		✓	✓
Superitem Tests in Mathematics		✓									✓	✓	✓				✓									
Surveys of Problem and Educational Skills		✓							✓	✓	✓						✓	✓		✓	✓				✓	
T2M3: Teachers Using Technology to Measure Mathematics Meaningfully		✓								✓	✓	✓	✓	✓	✓	✓										
Technology Curriculum Profile	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Understandings and Misunderstandings of Eighth Graders of Five Chemistry Concepts	✓											✓					✓									
Unit Plan	✓																✓	✓		✓	✓	✓	✓	✓		✓
Utah Core Performance Assessments -- Mathematics		✓			✓	✓	✓	✓	✓	✓							✓			✓		✓				
Utah Core Performance Assessments -- Science	✓				✓	✓	✓	✓	✓	✓									✓							
Vermont Mathematics Portfolio Project		✓						✓				✓					✓			✓	✓		✓		✓	
West Virgina -- STEP: Mathematics		✓			✓	✓	✓	✓	✓	✓																
What's Happening?	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Work Keys Assessment Component		✓																								

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
1) Drawings 2) Idea Listing 3) "Word" Problems	Indiana University - Purdue University, Fort Wayne	(219) 481-6447 or (219) 484-5609

Ms. Ann Dirkes
Professor of Education
Indiana University - Purdue University Fort Wayne
Fort Wayne , IN 46805-1499

Publication Date: 1993

Description: The information for this review comes from: Dirkes, M.A., "Self Directed Problem Solving: Idea Production in Mathematics," Lathan, MD: University Press of America, 1993. This book describes ways to have students make drawings on graph paper to illustrate concepts, make idea lists to show levels of understanding and connection-making, and produce ideas on novel word problems. These strategies are intended to measure the depth of student thinking and degrees to which students help themselves when automatic recall is insufficient. Strategies are tied directly to instruction and learning. Scoring is task specific and is right/wrong. No technical quality data available. It is publicly available from the publisher.

Title of Assessment	Organization	Phone
12 Schools Project	Division of Policy, Office of Assessment	(803) 734-8290

Dr. Pat Mohr
South Carolina Department of Education
Room 604, Rutledge Building
Columbia , SC 29201

Publication Date:

Description: The South Carolina Department of Education's Office of Authentic Assessment began a project in 1991 to work with 12 schools to develop assessments which integrate curriculum, instruction, and assessment in language arts, math, science, or interdisciplinary combinations of these areas. A specific goal is the development and implementation of performance assessments which are (1) based on the curriculum framework, national standards, and best practices, and (2) closely aligned with behaviors needed for success in academic disciplines and the workplace. The department sponsors Project Fairs at which project schools showcase their development efforts. A major goal for 1994-95 is to collect and disseminate assessment examples developed to other schools. Planned activities include publishing a task booklet with sample assessments from participating schools.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment **Organization** **Phone**

Advanced Placement Examination -- Calculus Educational Testing Service

Dr. Wade Curry **Publication Date:** 1992
Director, Advanced Placement Program
Mail Stop 85-D, Rosedale Road
Princeton , NJ 08541

Description: Information for this review comes from the "Performance Assessment Sampler," ETS, 1992. The Advanced Placement Program enables participating colleges to grant credit or appropriate placement to students who demonstrate qualifying performance on the examinations. Advanced Placement exams are given in art, biology, chemistry, computer science, economics, English, French, German, government/politics, history, Latin, mathematics, music, physics, psychology and Spanish. About 50% of each exam is free-response (essays, problems, etc.). (Studio art is a portfolio assessment.)

The sample constructed-response question we have is from the calculus examination. It requires students to show all their work. Three points are available for each part of the answer (9 points total). Points are awarded for correct answer, and specific intermediate steps or products. Thus scoring is task specific and seems to result in a measure of conceptual understanding.

The document includes the problem, the ideal solution, and scored sample student responses. No technical information is included. Examples are apparently available for a variety of advanced placement exams, however only a single calculus question is included in the document we have. (11 pp)

AIM High Math Identification Austin Independent School District Gifted & Talented Program (512) 499-1701

Ms. Glenda Clark **Publication Date:** unpublished
Senior Training/Technical Assistance Associate
211 East 7th Street
Austin , TX 78701-3281

Description: This set of paper-and-pencil instruments was developed as one of five criteria for placement decisions in the Austin Independent School District gifted math program in grades 2-5. Each instrument consists of one task with multiple open-response items. Students work individually. There is one task per grade level. Scoring is holistic. Student work samples are available.

The instrument, scoring guides, and sample student papers are available from the Austin Independent School District, Gifted and Talented Program, 305 N. Bluff Drive, Austin, TX 78745, (512) 447-7922. Educators may copy materials. (14 pages).

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Alberta Performance-Based Assessment -- Math	Alberta Education	(403) 427-0010

Mr. Greg Hall
Acting Program Manager, Achievement Testing
Student Eval Branch, Box 43, 11160 Jasper Ave.
Edmonton , AB T5K 0L2

Publication Date: 1992

Description: The information for this review comes from several documents, all from 1992: "Alberta Education, Student Assessment Programs"; "Grade 9 Mathematics Performance-Based Assessment Administration Manual"; "Performance-Based Assessment Grade 9 Student Booklet"; "Provincial Results, Mathematics 9"; "Grade 9 Math Field Test Instruction Booklet and Student Booklet"; "Grade 6 Math Field-Test Instruction Booklet and Student Booklet"; and "Grade 6 Answer Key". The 1992 ninth grade math on-demand performance assessment used six stations with hands-on activities. Students circulated through the stations; testing time for each group of six students was 90 minutes. Some of the six tasks were open-response and some were open-ended; all required an essay response and were assessed for problem solving. The six tasks involved: rearranging squares to form different perimeters for the same area; measurement and mapping; surface area; collecting and graphing information; estimation; and combinations/permutations. (The Grade 9 pilot field-tested 14 other tasks. The Grade 6 pilot field-tested 11 tasks.)

Responses to the Grade 9 tasks were scored using an analytical trait system having two dimensions: problem solving and communication. Each trait was scored on a scale of 0 (totally misunderstood or blank) to 3 (readily understood the task, developed a good strategy, carried out the strategy and generalized the conclusion). The document has a few possible student responses to illustrate scoring, but no actual student responses. The document also includes sample report formats for the Grade 9 assessment. (The Grade 6 pilot appears to have used task-specific scoring.) No technical information is included. (134 pp)

Alternative Assessment (La Plata Middle School)	La Plata Middle School	(505) 538-3774; FAX (509) 388-4762

Mr. Chris Drangmeister
Principal
2810 N. Swan
Silver City , NM 88061

Publication Date:

Description: Why are mammals so diverse? An integrated instructional/assessment unit developed for seventh graders by a middle school science teacher provides instruction and assessment in English, math, science, and social studies. Tasks include: A creative writing assignment in which students design an imaginary mammal; an oral presentation of the imaginary mammal; group research projects pertaining to a placental mammal of their choice, focusing on diversity, characteristics, and geographic distribution; a "Mammal Mobile" designed to deliver a wealth of information at a glance; and a term paper.

A mix of traditional assessment instruments and rubrics is used to assess content knowledge and skills. Educators may copy materials.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Alternative Assessment Techniques	Science Curriculum CTTE - School Admin. Unit 32	(603) 448-1634

Mr. Albert Cormier
Assistant Superintendent
School Administrative Unit - thirty-two
P.O. Box 488 84 Hanover Street

Lebanon , NH 03766

Publication Date:

Description: This is an assessment guide which contains some examples of student work and of possible assessment.
"Not intended to provide teachers with specific assessment tools for each grade level and/or unit. Rather, it is meant as a resource to help teachers design and/or choose appropriate assessments for use in their classrooms."

Title of Assessment	Organization	Phone
Alternative Assessments in Math and Science: Moving Toward a Moving Target	Virginia Education Association & Appalachia Ed Laboratory	(304) 347-0411

Dr. Jane Hange
Director , Classroom Instruction Program
AEL, P.O. box 1348
Charleston , WV 25325-1348

Publication Date: October 1992

Description: This manuscript is the report of a research study sponsored by the Virginia Education Association, Appalachia Educational Laboratory, the Virginia Department of Education and the National Education Association. The report includes background materials on alternative assessment, a bibliography, a glossary, 22 sample assessment instruments, sample design sheets, sample rubrics, a report of the research study (including rationale for the study and description of the project), criteria and instruments for determining quality of alternative assessment materials, and recommendations for implementing alternative assessments.

This document is an excellent guide for teachers and districts interested in alternative assessments.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Arizona Student Assessment Program -- Mathematics	Arizona Department of Education	(602) 542-4361

Dr. Marilynn Henley
Deputy Associate Superintendent
1535 West Jefferson
Phoenix , AZ 85007

Publication Date: 1992

Description: Arizona is developing open-response on-demand assessments in math, reading, writing, social studies, and science for grades 3, 8, and 12. The math test has been used for about two years; the science test is still under development. The mathematics test requires a minimum of manipulatives. Students provide short answers to a series of questions surrounding a common theme, such as a rock climbing competition or a "pizza spinner." They also sometimes provide explanations for responses or show computations.

Scoring is task-specific. Points are assigned for the correctness of the answer or response or the number of responses given.

The tests were developed by Riverside and are under copyright restriction until at least 1996. Permission to use any part of the assessment must be granted both by Riverside (Dr. John Keene, 1-800-767-8420) and the Arizona Department of Education.

Title of Assessment	Organization	Phone
Assessing Mathematical Power	Vancouver Public Schools	(206) 696- 7011

Dr. Charlotte Hartman
Resource Coordinator
P.O. Box 8937
Vancouver , WA 98668

Publication Date: 1993

Description: Vancouver School District is developing open-ended mathematics problems to supplement its multiple-choice tests of content. Pilots are being undertaken in several grade levels; however, we only have examples for grade 6.

The document we have contains: (1) a re-statement of the "big" NCTM outcomes (problem solving, reasoning, communcation, connections); (2) three sample on-demand problems (written presentation, essay response, and completed individually); (3) a scoring guide (generalized scoring guide rating the five traits of problem solving, communication, reasoning, math concepts and math procedures). The district is gathering benchmarks to illustrate each of the five traits.

A personal communication indicated that materials are used in two phases. First, several problems are done in a group to model how to proceed. Then, students choose three of five problems to do individually.

No technical information is available. (11 pp)

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SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Assessment and Technology Videotape	OERI, U.S. Office Ed., Apple Classrooms of Tomorrow	(212) 807-4200

Dr. Dorothy Bennett
EDC, 96 Morton St.
New York , NY 10014

Publication Date: 1993

Description: The Center for Technology in Education (CTE) has been conducting research on how best to use technology in assessment. It supports the use of video to capture aspects of students' performance that cannot be assessed with paper and pencil. This document consists of a video and handbook that focus on the assessment of thinking skills, communication skills, and interpersonal skills in the context of a hands-on group project that requires applying physics to the design of motorized devices. (Each device must produce at least two simultaneous motions in different directions to accomplish an action or set of actions.)

The first part of the video describes an alternative assessment system that uses students' personal journals, group logs, projects, and presentations. Personal journals document students' personal experiences with technology outside the classroom and their observations about how things work. Group logs document group problem-solving and dynamics. The group projects and extended presentations are the major part of the assessment. Presentations are videotaped and scored by a panel of experts and other students.

The second part of the video contains four examples of students' presentations (car wash, tank, garbage truck, and oscillating fan) which can be used to practice scoring using the criteria set forth in the handbook. The criteria are: Thinking Skills (understanding, critical thinking, meta-processing, extensions of knowledge & inquiry/creativity); Communication/Presentation (clarity, coherence, aesthetics); and Work Management/Interpersonal Skills (teamwork, thoroughness, effort, reflectiveness). Brief descriptions of the criteria are contained in the handbook. (20 pages plus video)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Assessment of Achievement Programme: Math	Scottish Office Education Department	(031) 244-4388

Dr. Brian Semple
Principal Research Officer
New St. Andrews House Room 4/51a
Edinburgh , Scotland EH1 3SY

Publication Date:

Description: The "Assessment of Achievement Programme (AAP)" was established by the Scottish Office Education Department in 1981 to monitor the performance of pupils in grades 4, 7 and 9. The 1989 report "Mathematics: Second Survey 1988" reports on the 1988 mathematics assessment. The assessment covered the following skills: calculation, measurement, geometry, algebra, estimation, and statistics (depending on grade level).

The on-demand assessment tasks used two formats: written and practical (hands-on). However, the report we have does not describe these two formats, nor explain how responses were scored. Schools in the assessment sample were also invited to comment on their mathematics program.

The document we have includes the rationale for the assessment and description of student performance. No technical information is included. (55 pp)

Assessment of Achievement Programme: Science	Scottish Office Education Department	(031) 244-4388

Dr. Brian Semple
Principal Research Officer
New St. Andrews House Rm 4/51a
Edinburgh , Scotland EH1 3SY

Publication Date: 1990

Description: The "Assessment of Achievement Programme (AAP)" was established by the Scottish Office Education Department in 1981 to monitor the performance of pupils in grades 4, 7 and 9. The 1992 report, "Science Assessment of Achievement Programme" reports on the 1990 science assessment. The assessment focused on science process skills: observing, measuring, handling information, using knowledge, using simple procedures, inferring, and investigating.

Assessment tasks used two on-demand formats: written (enhanced multiple-choice in which students select the correct answer and provide a reason for the choice); and practical (hands-on activities in which students use manipulatives to select the correct answer and provide a reason, or longer investigations such as observing an event and writing down the observation). The practical portion was set up in (1) circuits of eight stations (four minutes at each station), or (2) longer investigations of 15-30 minutes. Schools in the assessment sample were also invited to comment on the types of skills assessed, and describe the science program at their schools.

Detailed scoring guides are not provided in the materials we have. Student responses were apparently scored for both the correctness of the answer and the adequacy of the explanation.

The document we have describes the background of the assessment program, provides sample written and practical tasks for each skill area assessed, and describes student performance on the tasks (by grade level and gender, and over time). Technical information or sample student performances are not included. (60 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Assessment of Schema Knowledge for Arithmetic Story Problems	San Diego State College	(619) 594-4695

Dr. Sandra Marshall
Professor
5178 College Ave.
San Diego , CA 92182

Publication Date: 1990

Description: The Story Problem Solver (SPS) is described in a paper called "The Assessment of Schema Knowledge for Arithmetic Story Problems: A Cognitive Science Perspective," in G. Kulm (Ed.), "Assessing Higher Order Thinking in Mathematics," AAAS, 1991. The SPS was created to support instruction based on a theory of memory architecture called schemata. Under such theories, human memory consists of networks of related pieces of information. Each network is a schema, a collection of well-connected facts, features, algorithms, skills, and/or strategies.

Adult students are explicitly taught five problem solving schemas, and how to recognize which schema is represented by a story problem. SPS is a computerized assessment method in which several different enhanced multiple-choice item types are used: students pick out the schema or general solution strategy that fits a given story problem, decide which information in the story problem fits into the various frames of the schema, identify the steps needed to solve a problem, and decide whether the necessary information is given in the problem.

Some of the schema shells and item types are given as examples. No technical information is included.

Title of Assessment	Organization	Phone
Authentic Assessment for Multiple Users	Educational Testing Service	(404) 723-7424

Dr. Margaret Jorgensen
1979 Lakeside Parkway, Suite 400
Tucker , GA 30084

Publication Date: 1993

Description: These assessments are being developed by six teams of elementary and middle schools in Georgia in conjunction with the ETS Southern Field Office in Atlanta. The project is funded by NSF and the goal is to see if teachers can develop and agree on a model for portfolios that would generate meaningful information about achievement. Math and science assessment activities have been developed and are being piloted. The tasks represent a variety of modes: cooperative group, videotape, open-ended experiments that can be used across grades and content areas. Rubrics are well-developed. The assessments are under copyright by ETS. (200 pp)

Title of Assessment	Organization	Phone
Authentic Science Assessment Project	Missouri Department of Elementary and Secondary Education	(314) 751-9069

Mr. A. Bill Boulter
Science Consultant
P.O. Box 480
Jefferson City , MO 65102

Publication Date:

Description:

Title of Assessment	Organization	Phone
Benchmarks	Toronto Board of Education	(416) 598-4931

Dr. Marilyn Sullivan
Superintendent of Curriculum
155 College St.
Toronto , Ontario M5T 1P6

Publication Date: 1991

Description: Benchmarks are student performances on tasks tied to Provincial educational goals. The information for this review came from the report: "Benchmarks: The Development of a New Approach to Student Evaluation," Toronto Board of Education, 1991. Each Benchmark activity lists the goals to be addressed, the task, and the scoring system. To develop the Benchmarks, two observers were used for each student--one to interact with the student and one to record observations. These on-demand tasks vary considerably. Some require very discrete and short answers (e.g., knowledge of multipication facts using whatever means the student needs to complete the task), while some are more open-ended and require longer responses. There are 129 Benchmarks developed in language and mathematics for grades 3, 6, and 8.

For many of the tasks, a general, holistic, seven-point scale ("no response" to "rare, exceptional performance") was used as the basis to develop five-point holistic scoring scales specific to each task. For other tasks, scoring appears to be right/wrong. Holistic scoring seems to emphasize problem solving, method of production, process skills and accuracy, although students can also be rated on perseverence, confidence, willingness, and prior knowledge, depending on the Benchmark.

The percent of students in the pilot at each score point (e.g., 1-5) is given for comparison purposes, as are other statistics (such as norms) when appropriate. Anchor performances (e.g., what a "3" performance looks like) are available either on video or in hard copy.

The report we reviewed describes the philosophy behind the Benchmarks, how they were developed, and a few of the specific Benchmarks. Some technical information is described (factor analysis, rater agreement), but no student performances are provided. (150pp)

Title of Assessment	Organization	Phone
Bethel Science Achievement Tests	Bethel Public Schools	(203) 794-8601

Mr. Robert Gilchrest
Superintendent of Schools
P.O. Box 253
Bethel , CT 06801

Publication Date:

Description: These assessments of general science topics are designed for individual students at grades 4 and 8. The test materials use a written format with students providing short answer responses. Besides testing for science knowledge, higher-order thinking skills are also assessed. Classroom, building, and district reports are generated based upon student performance on these instruments.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Biology Regents Exam -- NYSTP	New York State Education Department	(518) 474-5900

Ms. Mary Corrado
Coordinator of Test Development Activities
Room 760-EBA
Albany , NY 12234

Publication Date:

Description: This statewide student biology assessment is based on a state syllabus, Regents Biology, which is used by each Regents biology teacher. The assessment is divided into 3 components: a locally developed laboratory program consisting of at least thirty 40-minute periods with successfully written laboratory reports on each lab experience (done throughout school year); a state-developed "Biology Laboratory Skills Evaluation Form" performance test of 6 tasks requiring the use of equipment (done throughout school year); and a paper/pencil test consisting of multiple-choice and free response items (up to 3 hrs. provided). A new form of the paper/pencil portion is available three times per year.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Biology -- Standard Grade	Scottish Examination Board	(031) 663-6601

Mr G. Dawson
Examination Officer
Ironmills Rd., Dalkeith, Midlothian
Edinburgh , Scotland EH22 1LE

Publication Date: 1993

Description: The Scottish Examination Board prepares end-of-course tests for a variety of high school subjects to certify level of student competence. The course syllabus for Biology calls for coverage of: the biosphere, the world of plants, animal survival, investigating cells, the body in action, inheritance, and biotechnology. The goals of the course are: knowledge and understanding, problem solving, practical abilities and attitudes. (Only the first three are assessed.) There are two main parts to the assessment for Biology--on-demand written tests (developed by the Examination Board) and classroom embedded performance assessments (conducted by teachers according to specifications developed by the Examination Board). The two parts are combined to grade (rate) student competence. Each goal is graded (rated) on a scale of 1-5, overall performance is graded on a scale of 1-7 (1 being highest).

Written tests, developed each year, cover knowledge/understanding and problem solving in the content areas outlined in the syllabus. Two levels of the test are available: General and Credit. Students getting about 50% right on the General level obtain a Grade 6; about 70% right gives a Grade 3. Likewise a score of about 50% on the Credit test gives a Grade 2, while 80% gives a Grade1. All questions are short answer or multiple-choice and are scored for degree of correctness of the answer.

The hands-on performance assessments for Practical Abilities cover 10 stipulated techniques, and students must demonstrate competence in all 10 (such as "using sampling techniques applicable to ecosystems). The assessments also cover two investigations in which student performances are scored against criteria which relate to 14 investigative skills objectives. Scoring involves assigning marks (points) for various specified features of performance, such as 2 marks for "identifies at least 3 relevant controllable variables."

The package of materials we received included the course syllabus, specifications for the written and performance assessments, and copies of the written tests for 1993. It did not include technical information or sample student responses. (125 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Brochures on Nuclear Chemistry	Greensboro Day School	(910) 288-8590

Ms. K. Windham
P.O. Box 26805
Greensboro , NC 27429-6805

Publication Date:

Description: Students in a high school chemistry class are asked to prepare a brochure to help seventh graders in their study of the environmental impact of nuclear chemistry. Students prepare a one-page, tri-fold brochure on a very specific, assigned part of nuclear chemistry. Topics include plutonium storage, dismantling nuclear bombs, low and high level nuclear waste, problems at nuclear plants, radioactive isotopes as tracers, and radioactive elements in the environment. The brochure must include a resource list for the seventh graders.

Through developing the brochure, students are to: (1) display competence in using standard reference sources, (2) display thorough knowledge of a specific area in the field, and (3) display basic competence with word processing/page maker programs or other advanced technologies. The brochure is assessed on content and presentation. A one-page direction sheet for students and sample brochures are available. (5 pp)

Business Mathematics	Antelope Valley High School	(805) 948-8552

Ms. Marcia Eyherabide
Business Teacher
44900 N. Division St.
Lancaster , CA 93535

Publication Date:

Description:

Calculator Mathematics Curriculum Assessment	University of Houston	(713) 743-4991; FAX (713) 743-9870

Dr. Susan E. Williams
University of Houston, College of Education, Curriculum and Instruction Department
Houston , TX 77204-5872

Publication Date:

Description: Developed by Drs. Susan E. Williams, Hersholt Waxman, and Juanita Copley, these observation instruments were designed to collect research data pertaining to the use of calculators in secondary mathematics classes. The instruments focus on the quality of calculator instruction. Student and teacher behaviors are recorded on a checklist about ten times per item per classroom period. General areas assessed include teacher/student interactions, environment, management of time and students, activities, materials, content, instructional strategies, and specific classroom applications of calculators. Assessment is done by the researcher while observing teachers conducting mathematics lessons. Instruments are available for observing the use of fraction, scientific and graphing calculators.

At this time, the assessment instrument is in the exploratory stage, though it has been successfully piloted. For more information, contact the authors.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
California Learning Assessment System: Math	California Department of Education	(916) 657-3011

Dr. Ellen Lee
Mathematics Consultant, CLAS
721 Capitol Mall
Sacramento , CA 94244-2720

Publication Date: 1993

Description: The CLAS is a series of statewide tests at grades 4, 8, and 10 in reading, writing, and math; and grades 5, 8, and 10 for science and social studies. These assessments reflect and support the curricular reforms described in California's 1992 Framework.

Information for the mathematics assessment comes from: "A Sampler of Mathematics Assessment Addendum, 1993," and "Students Standards and Success--The California Learning Assessment System, 1993," both from the California Department of Education. The mathematics assessment has been designed by teachers throughout California to allow students an opportunity to demonstrate their mathematical understandings and problem-solving ability using four types of tasks: open–ended problems, enhanced multiple–choice questions, short answer questions, and investigations. In 1993, the assessment consisted of several test booklets, each of which contained two open-ended problems and seven enhanced multiple-choice problems given in a 50-minute period. Any individual student only responded to the questions in one of the test booklets. Students could use calculators.

Scoring incorporates a 4-point rubric for open–ended items with the multiple-choice scores to map a student's score onto California's six levels of performance. The rubric is a general one used across tasks and emphasizes understanding of the problem, good communication, problem-solving ability, and use of mathematics. California is also field testing portfolios and investigations.

The system has undergone several years of pilot testing, but no technical information was included in the two reports we obtained. Samples of student work are included. (190 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
California Learning Assessment System: Science	California Department of Education	(916) 657-5472

Dr. Kathy Comfort
Science Consultant, CLAS
721 Capitol Mall, 4th floor
Sacramento , CA 95814

Publication Date: 1994

Description: The CLAS (formerly CAP) assesses grades 4, 8, and 10 students in reading, mathematics, and writing; and grades 5, 8, and 10 students in science and social studies.

This review is based on two documents: "A Sampler of Science Assessment, 1994," and "Student Standards and Success, 1993," both from the California Department of Education. Since 1989, CLAS has been developing, piloting, and field testing a range of new assessments in science, including performance tasks, enhanced multiple-choice items, open-ended and justified multiple-choice questions, and portfolios. These assessments are designed to provide students the opportunity to demonstrate conceptual understanding of the big ideas of science, to use scientific tools and processes, and to apply understanding of these big ideas to solve new problems.

In performance tasks, students are provided with hands-on equipment and materials and are asked to perform short experiments, make scientific observations, generate and record their data, and analyze their results. Open-ended questions require students to respond by writing a short paragraph, drawing a picture, or manipulating data on a chart or a graph. Enhanced multiple-choice items require students to think through the big ideas of science. In justified multiple-choice questions, students may justify or briefly write why they chose their answer. The 1994 Grade Five assessment consisted of three components (8 enhanced and 2 justified multiple-choice items, and a coordinated performance assessment).

Scoring occurs in a variety of fashions. For example, the 1994 grade 5 assessment was scored using a 4-point holistic guide for the open-ended questions, and a "component guide" for the performance tasks, in which similar items on a task are grouped and scored together. CLAS is also investigating the use of portfolios in science. Samples of student work are included. (170 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
California Learning Record	University of California at San Diego	(619) 534-4430

Dr. Mary Barr
Director
9500 Gilman Drive
La Jolla , CA 92093-0094

Publication Date: 1988 pilot

Description: The CLR is an adaptation of the Primary Language Record, developed at the Centre for Language in Primary Education in London, England. The CLR Project was funded to determine the feasibility of the CLR for helping students in Chapter 1 programs demonstrate success in the core curriculum set for all students in the state's curriculum frameworks. The CLR provides a format for documenting active participation in complex learning tasks. It is designed to produce a portfolio of information about the progress of individuals in literacy and language development as well as in subject area learning, based on documented observations and products of performance on classroom tasks and on contributions of parents about learning outside of school. The CLR is meant for use at every grade level with special focus on the underachieving students served in Chapter 1 programs. The CLR form is divided into three parts. Part A provides an initial documentation of students' prior experiences, interests, and aspirations. In part B, teachers summarize the learning patterns as evidence of progress along scales or descriptors of performance. Part C calls for the reflecting on the year's work, including parent and student review and comments.

The information we obtained was very general and did not describe the science or math components. The CLR handbook for Teachers, K-6 and 6-12, is available from the USCD Bookstore, for approximately $8 + shipping, handling, and tax.

Title of Assessment	Organization	Phone
California Program for Learning Assessment -- Mathematics Performance Assessments	Riverside Publishing Company	(800) 323-9540

Dr. Susan Holmes
Vice President, Editorial Director
8420 Bryn Mawr Ave.
Chicago , IL 60631

Publication Date: 1994

Description: The "California Program for Learning Assessment" addresses language arts and mathematics in 8 levels for grades 3-10. The on-demand math tests are designed to be given in 45 minutes and have two parts. Part 1 contains two open-ended math problems requiring an essay response which take approximately 30 minutes to complete. Part 2 has seven enhanced multiple-choice problems which take approximately 15 minutes to complete. The test is designed to assess problem solving, application of knowledge, and communication skills rather than knowledge of specific facts or operations. The open-ended problems require written responses and are completed individually. Both open-ended and multiple-choice questions are thought-provoking.

Open-ended responses are scored using a 0 to 4-point generalized, holistic rubric where "4:" "Shows a complete understanding of the problem and addresses all relevant mathematical ideas. Exhibits sound reasoning and draws logical conclusions. Communicates clearly through the use of appropriate charts, graphs, diagrams, illustrations, and/or words. Provides computation (where required) adequate for the solution of the problem." Although somewhat sketchy, this rubric attempts to address the "big" outcomes in the NCTM standards. To help the scorer, the general rubric is tailored to each particular problem.

The materials we received mention a pilot test in 17 California schools, but no details are given. (115 pp)

Career –Technical Assessment Program	Far West Laboratory	(415) 241-2711

Dr. Stanley Rabinowitz
Project Director
730 Harrison Street
San Francisco , CA 94107-1242

Publication Date: 1990

Description: Under development since 1990, the Career–Technical Assessment Program (C–TAP) is intended to certify students' mastery of industry–validated standards. California's new, statewide assessment system provides opportunities for students across the state to demonstrate their unique abilities and strengths. C–TAP measures each student's mastery of content standards, academic foundation skills and workplace readiness skills in an integrated format. The focus of the assessments is the occupational cluster (a group of related occupations) as opposed to specific occupations. Students demonstrate their skills in a portfolio (including a career development package, work samples, writing sample, letter of introduction, and supervised practical experience); a project (a project plan, a product, and an oral presentation); and a written scenario (an on–demand writing task that requires critical thinking in the content area). Together, the components assess the student on four dimensions: content, career preparation, analysis, and communication.

Materials available (at cost from Far West Lab) include a "C–TAP Guidebook for Teachers" and a "Guidebook for Students." Benchmarks will also be available. Lending copies of "Project Planners" (90 pages) and "Portfolio Guidelines" (160 pages) and information about scenarios (10 pages) are available through the LNP.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
CAT/5 Performance Assessment Supplement	CTB McGraw-Hill	(408) 649-7728

Mr. John Stewart
Senior Product Manager
2500 Garden Rd.
Monterey , CA 93940

Publication Date: 1993

Description: The "CTB Performance Assessments" are designed to either be stand-alone or integrated with the CAT/5 or CTBS/4. There are five levels for grades 2-11. The total on-demand battery includes reading/language arts, mathematics, science, and social studies. There are 12-25 short answer questions for each subtest. The math and science subtests take 30-40 minutes. The entire battery takes two to three hours. (For the CAT/5 there is a checklist of skills that can be used at grades K and 1.)

Some questions are grouped around a common theme. Many resemble multiple-choice questions with the choices taken off. For example, questions on one level include: "What are two ways that recycling paper products helps the environment?" "This table shows the air temperatures recorded every two hours from noon to midnight...At what time did the temperature shown on the thermometer most likely occur?" and "These pictures show some of the instruments that are used in science...List two physical properties of the water in the jar below that can be measured with the instruments shown in the pictures. Next to each property, write the name of the instrument or instruments used to measure the property."

Some of the answers are scored right/wrong and some are scored holistically. The materials we received contained no examples of the holistic scoring so we are unable to describe it. Scoring can be done either locally or by the publisher. When the Performance Assessments are given with the CAT/5 or CTBS/4 results can be integrated to provide normative information and scores in six areas. Only three of these, however, use information from the math and science subtests: demonstrating content and concept knowledge, demonstrating knowledge of processes/skills/procedures, and using applications/problem solving strategies. When the Performance Assessments are given by themselves only skill scores are available.

The materials we received contain sample administration and test booklets only. No technical information or scoring guides are included.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Chapter 1 - Non Standardized Measure	Milwaukee Public Schools	(414) 475-8259

Mr. Gary Peterson
Coordinator
P.O. Drawer 10K
Milwaukee , WI 53201-8210

Publication Date: 1/19/93

Description: This test consists of two performance prompts. Students are asked to show all their work and explain in detail the steps they used to address the prompt. Students may also be asked to answer a question which is an extension of the problem and justify their answer. A prompt may be open-ended or have multiple solutions.

This test was designed as an individual performance assessment for students receiving Chapter 1 services in the middle school mathematics project, grades 6-8. The test is administered by Chapter 1 mathematics teachers, and is used as part of the evaluation of the Chapter 1 project. The test is holistically scored by Chapter 1 mathematics teachers in a districtwide scoring session using a six-point rubric.

The test has not been analyzed for reliability or validity.

Title of Assessment	Organization	Phone
Chemistry Computer-Based Objective Assessment Tasks (COM-BOAT)	ACS Examination Institute	(803) 656-1249

Dr. I. Dwaine Eubanks
Director
223 Brackett Hall, Clemson University
Clemson , SC 29631-1913

Publication Date: TBA

Description: NSF has funded a three-year project to produce demonstration, computer-based, objective assessment tasks (ComBOAT). The focus is to enable teachers to produce elaborate, interactive, multi-media activities that allow students to demonstrate their mastery of science content, concepts, and skills more effectively than is possible with paper and pencil tests. The authoring "shell" will enable developers of assessment materials to construct eight complete assessment tasks that will allow students in ChemCom and advanced chemistry classes to access a variety of resources in solving problems that are genuinely reflective of course objectives. The ChemCom assessment tasks will measure student acquisition of decision-making skills, and the advanced chemistry tasks will measure student ability to apply chemical knowledge to develop new understandings of chemical phenomena.

The project staff is particularly concerned that the computer-based model and the accompanying assessment activities be usable, valid, and appropriate. Highly skilled chemistry educators will be used in constructing assessment tasks, talented programmers in implementing those activities for microcomputers, and accomplished evaluators in determining the quality and usability of the products. Particular attention will be devoted to the extent to which this assessment environment improves opportunities for under-represented minorities and women to demonstrate knowledge of science.

When the authoring shell is complete, science teachers from other disciplines (in addition to chemistry) will be taught to use the application to construct their own sophisticated assessment tasks. The software will track all student inputs and the judgment of the degree of success will be based on how extensively computer intervention was required to keep the student on track.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Chemistry Regents Exam -- NYSTP	New York State Education Department	(518) 474-5900

Ms. Mary Corrado
Coordinator of Test Development Activities
Room 760-EBA
Albany , NY 12234

Publication Date:

Description: This statewide student chemistry assessment is based on a state syllabus, Regents Chemistry, which is used by each Regents chemistry teacher. The assessment is divided into 2 components: a locally developed laboratory program consisting of at least thirty 40-minute periods with successfully written laboratory reports on each lab experience (done throughout school year); and a paper/pencil test consisting of multiple-choice items (up to 3 hrs. provided). A twelve-page "Reference Tables for Chemistry," used by students throughout the school year as part of instruction, is also used by students on the assessment. A new form of the paper/pencil component is available twice each year.

Title of Assessment	Organization	Phone
Chemistry -- Standard Grade	Scottish Examination Board	(031) 663- 6601

Mr. G. Dawson
Examination Officer
Ironmills Rd., Dalkeith, Midlothian
Edinburgh , Scotland EH22 1LE

Publication Date:

Description: The Scottish Examination Board prepares on-demand end-of-course tests for a variety of high school subjects to certify level of student competence. We have not specifically received materials for the Chemistry assessment. This summary is based on tests we received in other areas of science. Within the content specified by the syllabus for the course, student goals are: knowledge, problem solving, practical abilities (science process skills), and attitudes. (Only the first three are assessed.) There are two main parts to the assessment--written tests (developed by the Examination Board) and classroom embedded performance assessments (conducted by teachers according to specifications developed by the Examination Board). The two parts are combined to grade (rate) student competence on a scale of 1-7 (1 being high).

Written tests, developed each year, cover knowledge/understanding and problem solving in the content areas outlined in the syllabus. Two levels of the test are available: General and Credit. Students getting about 50% right on the General level obtain a Grade 6; about 70% right gives a Grade 3. Likewise, a score of about 50% on the Credit test gives a Grade 2, while 80% gives a Grade 1. All questions are short answer or multipe-choice and are scored for degree of correctness of the answer.

The hands-on performance assessments for Practical Abilities cover 10 key abilities (e.g., manipulating apparatus correctly and safely"). Student performances on each of these key abilities are assessed through one technique (e.g., "titrations") selected from each of five specified groups. Performance assessment also covers two investigations in which students are scored against criteria based on 14 investigative skills objectives. Scoring entails assigning marks (points) to various specified features of performance, such as 2 marks for "clearly states a testable hypothesis."

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Classroom-based Assessment in Middle School Science and Mathematics	College of Education, Michigan State University	(517) 355-1725

Dr. James\Sandra Gallagher\Wilcox
Professor/Assistant Professor
327 Erickson Hall, Michigan State University
East Lansing , MI 48824

Publication Date: 1/21/93

Description: This entry is a classroom-based assessment for grades 6-9 to guide teaching and learning in science and mathematics. It is administered individually and in groups with scoring by teacher and the student. The prototype is under development, and no technical studies are reported. A scoring guide, benchmark performances and training materials are available.

Title of Assessment	Organization	Phone
Collis-Romberg Mathematical Problem Solving Profiles	Australian Council for Educational Research	Australia + (03) 819-1400

Dr. Brian Doig
Senior Research Fellow
P.O. Box 210
Hawthorn, Victoria , Australia 3122

Publication Date: 1992

Description: This assessment device for students in grades 5-12 has 20 open-ended short answer problems to solve--one problem in each of five areas (algebra, chance, measurement, number and space) with four questions per problem area. Each question is designed to tap a developmental level of formal reasoning. For example, the "A" question determines whether the student can use one obvious piece of information from the item, while the "D" question determines whether the student can use an abstract general principle or hypothesis derived from the information in the problem. The purpose is to diagnosis level of formal reasoning in order to plan instruction.

Responses to each question are scored right/wrong. The total number of correct responses on each task determines a developmental level. The manual contains all information needed to give and score the test. Suggestions are given for instructional strategies for the various developmental levels. Technical information in the manual includes typical performance for various grade levels, teacher judgment on the developmental level indicated by each task, and additional analyses to show validity of the inferences drawn.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Common Core of Learning: Math	Connecticut State Department of Education and National Science Foundation	(203) 566-6585

Dr. Joan Baron
Principal Investigator
P.O. Box 2219
Hartford , CT 06145

Publication Date:

Description: The Connecticut Common Core of Learning Assessment project for secondary school students in mathematics was funded by the National Mathematics Foundation and the Connecticut State Department of Education. Two different types of assessment prototypes were developed. The first prototype has three sections. In Part 1 of the task, each student provides information individually about his or her prior knowledge and understanding of mathematical concepts and processes relevant to the tasks. In Part 2 of the task, students work in small groups over several days to solve a mathematical problem. Students plan, explore, and present their work together. In Part 3 of the task, a series of related questions is administered to students individually to provide the teacher and students with opportunities to apply their knowledge to a new but related situation. A second prototype was designed to be used primarily for accountability purposes. These tasks take between 5 and 45 minutes. Students work individually and produce written responses which are scored by external scorers.

Common Core of Learning: Science	Connecticut State Department of Education and National Science Foundation	(203) 566-6585

Dr. Joan Baron
Principal Investigator
P.O. Box 2219
Hartford , CT 06145

Publication Date:

Description: The Connecticut Common Core of Learning Assessment project for secondary school students in science was funded by the National Science Foundation and the Connecticut State Department of Education. Two different types of assessment prototypes were developed. The first prototype has three sections. In Part 1 of the task, each student provides information individually about his or her prior knowledge and understanding of the scientific concepts and processes relevant to the tasks. In the Part 2 of the task, students work in small groups over several days to solve a scientific problem. Students plan, explore, and present their work together. In Part 3 of the task, a series of related questions is administered to students individually to provide the teacher and students with opportunities to apply their knowledge to a new but related situation. A second prototype was designed to be used primarily for accountability purposes. These tasks take between 5 and 345 minutes. Students work individually and produce written responses which are scored by external scorers.

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SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Connecticut Mastery Test: Math	Connecticut State Department of Education	(203) 566-2201

Dr. Peter Behuniak
Acting Bureau Chief of Evaluation and Student Assessment
P.O. Box 2219
Hartford , CT 06145

Publication Date:

Description: These statewide math assessments are designed for all students at grades 4, 6, 8, and 10. The test materials use a written format with students providing both structured and open performance responses. As part of the testing, rulers are used by each student and calculators at grade 6 and 8. Besides math knowledge, higher-order thinking skills are also assessed. Reports on student performance are generated for each student, classroom, building, and district.

Title of Assessment	Organization	Phone
Continuous Progress Assessment Form	Peeler/Erwin Middle School	(910) 370-8270

Dr. Martha Hudson
Principal
2200 Randall St.
Greensboro , NC 27401

Publication Date: 1990

Description: This math progress reporting form, appropriate for primary students (K-2), was developed by teachers in an ungraded elementary school. The checklist is divided into six categories--numeration, geometric ideas, classification, measurement, problem solving and data collection, and computation of whole numbers. Three to fifteen objectives are listed under each category. For example, measures with standard units is an objective under measurement.

This assessment is particularly appropriate for an elementary school which operates on a continuous progress format. (4 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
CRESST Performance Assessment Models: Assessing Content Area Explanations--Chemistry	National Center for Research on Evaluation, Standards, and Student Testing	(310) 206-1532

Dr. Eva Baker
Co-Director
405 Hilgard Ave., 145 Moore Hall
Los Angeles , CA 90024

Publication Date: 1992

Description: The material for this review was taken from the document: "CRESST Performance Assessment Models: Assessing Content Area Explanations," Eva Baker, Pamela Aschbacher, David Niemi, and Edynn Sato, CRESST, April 1992. The authors provide two detailed examples of performance assessments for high school students--history and chemistry. In addition to these two specific examples, the document includes help on duplicating the technique with other subject matter areas, including rater training, scoring techniques, and methods for reporting results. The general procedure includes: a Prior Knowledge Measure which assesses (and activates) students' general and topic-relevant knowledge; provision of primary source/written background materials; an essaytask in which students integrate prior and new knowledge to explain subject matter issues in response to a prompt; and a scoring rubric.

The prior knowledge portion of the chemistry example consists of 20 chemistry terms for which students "write down what comes to mind drawing upon your knowledge of chemistry." The "written materials" consist of a description of how a chemistry teacher tested samples of soda pop to determine which contained sugar and which contained an artificial sweetener. The writing task involves assisting a student who has been absent to prepare for an exam.

Scoring is done on a scale of 0-5 for each of: overall impression, prior knowledge, number of principles or concepts cited, quality of argumentation, amount of text-based detail, and number of misconceptions. (The scoring scheme is elaborated upon for the history example, but not for the chemistry example.) Scoring on several of the five-point scales is based on the number of instances of a response rather than their quality. For example, conceptual misunderstanding is scored by counting the number of misunderstandings. Only the "argumentation" scale calls for a quality judgment.

No technical information is included. Sample student responses are provided for the history example but not the chemistry example. (93 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
CTB Math Task Bank	CTB McGraw-Hill	(408) 649-7728

Mr. Jon Dungan
Product Manager
2500 Garden Road
Monterey , CA 93940

Publication Date: ??

Description: The "CTB Math Task Bank" contains 644 short answer math tasks for grades 3-9. (There is also a language arts bank.) Each series of questions is comprised of one or more theme-based activities. For example, the ninth grade bank contains a series of questions that relate to "selling advertisements for the yearbook." Questions require students to do such things as: identify how many ads of various sizes can fit on a single page; how much money different types of layouts can generate; and how many ads need to be sold to cover expenses. Most tasks are, thus, very structured and have only one right answer. However, a few are more open-ended. For example, a grade 4 task is: "You and a friend are playing a guessing game. You think of the number 10. Your friend must guess the number you have chosen. Give your friend some hints to help him guess this number. On the lines below, write four different hints about this number using math ideas." Additionally, some tasks attempt to get at self-reflection: "Draw a circle around the number below that shows how easy or how hard it was for you to solve the problems in this task."

The materials we received do not elaborate on scoring. It appears that most questions are scored right/wrong. Presumably then, the total number of points on questions covering each skill provide an indication of student ability. No direct judgments of problem solving, reasoning, communication, etc. are made.

Tasks can be accessed by student learning goal (tasks are cross-referenced to the NCTM standards), theme (e.g., year book ads), or question difficulty. CTB also publishes software to support the task bank. This includes test generation and scoring.

The materials we received do not contain technical information. (67 pp)

Curriculum Frameworks -- Math	Jefferson County Public School District	(502) 473-3036

Mr. R. David Covert
Testing Specialist
3332 Newburg Rd
Louisville , KY 40232

Publication Date:

Description:

Curriculum Frameworks -- Science	Jefferson County Public School District	(502) 473-3036

Dr. R. David Covert
Testing Specialist
3332 Newburg Road
Louisville , KY 40232

Publication Date:

Description:

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Curriculum-Based Alternative Assessment of Mathematics (CBAAM)	Mt. Diablo Unified School District	(510) 682-8000, ext. 4135

Mr. Richard Nicoll
Administrator
1936 Carlotta Dr.
Concord , CA 94519

Publication Date: 1993

Description: This review is based on reports of the 1993 third and sixth grade, on-demand assessments (70 pp) and on two 1994 reports entitled "Third (or Sixth) Grade Curriculum-Based Alternative Assessment of Mathematics (CBAAM): A Report to Teachers," each 26 pp. Students respond to three extended problems, some of which have right/wrong answers and some of which are more generative and require more extended responses. For example, one third grade problem requires students to plan a city. Students are directed to list "buildings and places needed to have a working community," pick 8-10 from the list, place these on a map, and describe the rationale for the placement. Students do both group and individual work.

A generalized, holistic, 6-point scoring guide is tailored to individual problems. (It is based on the rubric used in the CLAS statewide assessment.) In the generalized version, a "6" is: "Complete response with a clear, coherent, unambiguous, and elegant explanation; includes a clear and simplified diagram when appropriate; communicates effectively to the reader; shows understanding of the open-ended problem's mathematical ideas and processes; identifies all the important elements of the problem." The document includes three scored student responses for each problem.

The documents also include a rationale for alternative assessment, and the context for the Mt. Diablo assessment. No technical information is included. The contact person has given educators permission to copy this document for their own use.

Curriculum-Based Measurement	School District #11	(719) 520-2077

Dr. Joe Hansen
Exec. Director of Planning
1115 N. El Paso St.
Colorado Springs , CO 80903

Publication Date:

Description:

Developing Skills Checklist (DSC)	CTB McGraw-Hill	(408) 649-7738

Ms. Marjorie Geesaman
Product Manager
2500 Garden Rd.
Monterey , CA 93940

Publication Date:

Description:

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Developmental Assessment Project: Oregon Cadre for Assistance to Teachers of Science (OCATS)	Institute for Developmental Sciences	(503) 234-4600

Dr. Richard Meinhard
3957 E. Burnside
Portland , OR 97214

Publication Date: 1990

Description: The OCATS (Oregon Cadre for Assistance to Teachers of Science) project is designed to encourage concept/process-based science education in order to promote long range student growth in science. One part of this project has been to gather information on how twelve science concepts develop in students from K to 5. The concepts are: organization of objects (simple classification, multiple classification, seriation, whole number operations); geometrical and spatial relationships of objects (perimeter, area, multiplicative projective relationships); physical properties of objects (quantity, weight, volume); experimental reasoning (controlling variables); and causal explanation (proportional reasoning).

One performance task was given to the students for each concept area. Performance was rated for developmental stage: sensory-motor, preoperational, operational, and formal. Each stage has two substages for a final scale having eight points.

Descriptive information is available for 40 K-5 students. Neither the performance tasks nor the scoring technique are described in detail in this paper. No technical information, except distribution of performance, is included. (24 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Diagnostic Mathematics Program	Alberta Education	(403) 427-0010

Dr. Dennis Belyk
Assistant Director, Student Evaluation Branch
Box 43, Devonian Building, West Tower 11160 Jasper Ave.
Edmonton , AB T5K OL2

Publication Date: 1990

Description: The Diagnostic Mathematics Program provides assessment and instructional ideas and materials for five goal areas (numeration, operations/properties, measurement, geometry, and problem solving) at six grade levels (1-6). There are 10 handbooks designed for classroom teachers: five goal areas times two levels (grades 1-3 are bound together in the same book, as are grades 4-6). Each handbook contains observation checklists, structured interviews, and written tests for several subskills within each skill area. For example, the numeration handbook in grade 3 has separate sections for: place value/whole numbers, decimals, fractions, and ordering whole numbers. In problem solving for grade 3, there are separate assessments for "understanding the problem," "developing and carrying out the plan," and "looking back" (checking the answer).

"Observations" require teachers to make a judgment of the skill level (strong, adequate, or weak) of the student in each area to identify those students for whom further evaluation is necessary. Some assistance is given on the criteria for making these judgments.

"Interviews" require students to solve problems or answer questions presented orally. These are the same types of problems as on the written tests. Except for a few problems in the problem-solving handbook, problems are atomistic--each problem is designed to assess a different skill. Except for a few problems in the problem-solving handbook, responses are short answer and are scored right/wrong. Total correct is used to assign a rating of "strong," "adequate," or "weak" for each skill. No rationale is provided for the cut scores given for each rating. In problem-solving, a few problem solutions are scored judgmentally on a scale of 0-2 in three areas: "understanding the problem," "developing and carrying out the plan," and "looking back." A generalized scoring guide is adapted to each specific problem.

No technical information is provided. (2750 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Diagnostic/Prescriptive Teaching in Mathematics	Stroudsburg Area School District	(717) 544-9131

Mr. Lawrence Pulko
Curriculum Coordinator
Schuylkill IU 29, P.O. Box 130
Marlin , PA 17051

Publication Date: 1992

Description: Five instruments are used to determine individual children's strengths and weaknesses in mathematics: survey test, concept test, interview, attitude scale, and learning style inventory. This battery is used in grades K-8 to provide information about the child's thought processes and problem-solving strategies, preferred concrete models, competence, and level of maturation. The assessment is intended to go beyond testing for right or wrong answers; it determines what is causing the wrong answers and assists in developing a program to correct specific causes of errors.

The survey and concept tests are structured (e.g., there is only one right answer), but use manipulatives as needed. The interview is open-ended and one-to-one. An example of a typical assessment sequence is a second grade child who can do multi-digit subtraction with trading, but only with base ten blocks, not with a paper/pencil algorithm. A diagnostic interview reveals that the child seems to understand the concept of such subtraction but is not ready for the paper/pencil algorithm.

The instruments, originally developed in 1977, assess numbers and number relations, arithmetic, measurement and geometry.

Dichotomous Key Construction	Paris High School	(217) 466-1175

Ms. Julia Comingore
Biology/Anatomy Physiology teacher
309 S. Main Street
Paris , IL 61944

Publication Date: 1/28/93

Description: This assessment is used with a unit on classification. There is more than one correct way to construct the project. Students work in pairs with want ads to design their own classification schema. Using poster board, students sort the want ads into the classification schema they have designed. The assessment author reports that an analytical scoring guide is utilized, but this was not enclosed with the description. The developmental status is exploratory. No technical data are available. Best suited for use in the ninth grade (or high school) biology class. Scoring is analytical, and the developmental status is exploratory. No technical data are available.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Diploma Examinations Program -- Chemistry 30, Physics 30, Biology 30	Alberta Education	(403) 427-0010

Mr. Greg Hall
Acting Program Manager, Achievement Testing
Box 43, 11160 Jasper Ave.

Edmonton , AB T5K 0L2

Publication Date: 1991

Description: Alberta Education develops diploma examinations in several course areas. These, combined with school-awarded "marks" are used to assign credit for the courses. We have received the 1991 versions of the exams for Chemistry 30, Physics 30, and Biology 30. There are three types of questions: multiple-choice, "numerical response" (students "bubble" their answers onto the scan sheet), and written response. All three tests have multiple-choice. The other two formats differ between tests.

All tests appear to only assess knowledge of the subject area. (Rather than problem solving, communication, reasoning, science process skills, etc.) Examinations are given locally under controlled conditions. Papers are scored centrally. Scoring appears to be based on the correctness of the answer. (133 pp)

Diploma Examinations Program -- Mathematics 30	Alberta Education	(403) 427-0010

Mr. Greg Hall
Acting Program Manager, Achievement Testing
Box 43, 11160 Jasper Ave.
Edmonton , AB T5K 0L2

Publication Date: 1991

Description: Alberta Education develops diploma examinations in several course areas. These, combined with school-awarded "marks" are used to assign credit for the courses. The Mathematics 30 examination has three parts: multiple-choice, "numerical response" (students "bubble" their answers onto the scan sheet), and short answer. The test appears to only assess knowledge of the subject area. (Rather than problem solving, communication, reasoning, etc.) Examinations are given locally under controlled conditions. Papers are scored centrally. Scoring appears to be based on the correctness of the answer.

The Mathematics test covers advanced algebra, geometry, trigonometry, and number theory. (43 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Discovering the Problem of Solid Waste --Performance Assessments	Lake County Educational Service Center	(708) 223-3400

Dr. Elaine Philip Lee
Science Literacy Coordinator
19525 West Washington St.
Grayslake , IL 60030

Publication Date: 1991

Description: In this booklet, 17 performance tasks are presented for students in grades 3-6. The tasks are based on an instructional manual used to teach the topic of solid waste. The assessments emphasize knowledge of the topic and application of the knowledge to hands-on activities. Not all the tasks are appropriate for all three grade levels.

Each performance task contains information about grade level, the concept(s) being assessed (e..g., types of solid waste or recognizing changes in materials in a landfill), process skills needed to complete the task (e.g., classifying, measuring, observing, or ordering), the objects/items needed for the task, directions, and questions to answer. Many of these hands-on tasks are completed at a work station in the classroom or at home and require an extended response.

Scoring emphasizes the correctness of the responses; scoring guides differ for each task. A few tasks are scored for things besides knowledge (e.g., creativity, following directions). The guides provide information on the maximum number of points to assign for each question and for the entire task.

No information on staff training or technical information is provided. (42 pp)

District Achievement Levels Test (DALT): Math	School District #11	(719) 520-2077

Dr. Joe Hansen
Executive Director, DPEM
1115 N. El Paso St.
Colorado Springs , CO 80903

Publication Date:

Description:

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Drivers Start Your Engines	Maryland Assessment Consortium	(301) 694-1337

Dr. Jay McTighe
Director, Maryland Assessment Consortium
c/o Frederick County Schools, 115 E. Church St.

Frederick , MD 21701

Publication Date: 1993

Description: The Maryland Assessment Consortium involves teams of teachers from Maryland school systems in developing performance assessment tasks in grades 4-6 for formative purposes. Each task is constructed to assess specific state learning outcomes. Following review and field testing, the tasks are made available to school systems for use within their instructional programs.

"Drivers, Start Your Engines" is a sample task which assesses arithmetic, measurement, geometry, statistics, physics and general science. Scoring guidelines are included. Tasks will be available for sale with a restricted-use license. The student booklet is 7 pages and the teacher booklet is 13 pages.

Title of Assessment	Organization	Phone
Earth Science Regents Exam -- NYSTP	New York State Education Department	(518) 474-5900

Ms. Mary Corrado
Coordinator of Test Development Activities
Room 760-EBA
Albany , NY 12234

Publication Date:

Description: This statewide student earth science assessment is based on a state syllabus, Earth Science, which is used by each Regents earth science teacher. The assessment is divided into 3 components: a locally developed laboratory program consisting of at least thirty 40-minute periods with successfully written laboratory reports on each lab experience (done throughout the school year); a state-developed laboratory performance test of 5 tasks requiring the use of equipment (45 min.); and a paper/pencil test consisting of multiple-choice and free response items (up to 3 hrs. provided). A sixteen-page Earth Science Reference Tables, used by students throughout the school year as part of instruction, is also used by students on the assessment. A new form of the paper/pencil component portion is available three times per year.

Title of Assessment	Organization	Phone
Elementary School Pre-Post Survey	Access 2000	(708) 491-4979

Ms. Constance Williams
Evaluation Coordinator
Northwestern University, 617 Dartmouth Place
Evanston , IL 60208

Publication Date: 3/10/93

Description: This document is a math/science/reading attitude survey for students in grades K-5. It is used with Access 2000 participants (mostly Black and Hispanic elementary students) enrolled in a math/science engineering enrichment program. It is used as a pre-post evaluation. It has restricted availability. Data and statistics are available.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Elementary Science Curriculum Evaluation	Saskatchewan Department of Education	(306) 787-6030

Dr. Rick Jones
Director, Assessment and Evaluation
1855 Victoria Ave
Regina , Canada S4P 3V7

Publication Date:

Description:

Title of Assessment	Organization	Phone
Elementary Science Program Evaluation Test ESPET	New York State Education Department	(518) 486-2243

Ms. Mary Oliver
Associate Educational Testing
Room 760 EBA
Albany , NY 12234

Publication Date: Continuing

Description: The manipulative skills test consists of 5 stations with a total of 15 exercises worth 22 credits that evaluate a number of inquiry and communication skills. Students are provided 9 minutes/station to conduct the activity and record their responses. The tasks provide an opportunity for students to:
(1) measure basic physical properties of an object; (2) predict an event; (3) create a classification system; (4) test objects and make a generalization; and (5) make inferences. The total assessment program also consists of a paper/pencil test of 45 multiple-choice items, and surveys of classroom environment, teachers, administrator, and parents.

Title of Assessment	Organization	Phone
End of Course Examination -- Math Production Test	D.C. Public Schools	(202) 727-2092

Dr. Cynthia Almeida
Assistant Director, Student Assessment
Bryan Building Rm. 206, 13th and Independence Avenue S.E.
Washington , DC 20003

Publication Date:

Description:

Title of Assessment	Organization	Phone
End of Course Examination -- Science Production Test	D.C. Public Schools	(202) 727-2092

Dr. Cynthia Almeida
Assistant Director, Student Assessment
Bryan Building Room 206, 13th and Independence Ave. S.E.
Washington , DC 20003

Publication Date:

Description:

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Essential Competencies Certification (ECCC)	Hawaii Department of Education	(808) 735-2019

Dr. Zoe Ann Brown
Test Development Specialist II
3430 Leahi Ave. Bldg D.,1st Flr.
Honolulu , HI 96815

Publication Date: 1994

Description: The ECCC is an alternative means of demonstrating mastery of Hawaii's 15 Essential Competencies. It consists of a series of hands-on tasks such as filling out actual forms, computing restaurant bills, and answering questions about the functions of certain governmental agencies. The tasks on the ECCC require students to write their answers. Students may take the ECCC to demonstrate mastery of subtests not previously shown to be mastered on the multiple-choice HSTEC (Hawaii State Test of Essential Competencies).

There are many types of tasks students would be required to perform on the ECCC. For example, students might be asked to fill out an application, take a phone message, write a letter, calculate the cost of a meal, identify common visual symbols, tell how to solve a community problem, or read newspaper articles and determine if information is mainly fact or opinion.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Evaluating Students' Learning and Communication Processes	Alberta Education	(403) 427-0010

Dr. Dennis Belyk
Assistant Director Student Evaluation Branch
Devonian Building West Tower Box 43, 11160 Jasper Avenue
Edmonton , AB T5K OL2

Publication Date: 1993

Description: The goals of the "Evaluating Students' Learning and Communication Processes" program are to: (1) evaluate progress of secondary students (grades 7-10) in six learning and communication processes; (2) integrate the six processes across classes in language arts, social studies, and science; and (3) empower students to take control of learning by making them conscious of the six process skills and how they, themselves, use them. It is based on the premise that students' achievement is directly related to the extent to which they have conscious, independent control over essential learning and communication processes. The six learning and communication processes are: exploring, narrating, imagining, empathizing (understanding the perspectives of others), abstracting (create, support, apply and evaluate generalizations), and monitoring. The materials provide generalized performance criteria (indicators) that serve both to define each process skill and to provide a mechanism for judging the quality of student use of the skill regardless of the area in which they are working.

There is a general handbook for all subject areas that covers evaluation (performance criteria and recording information) and instruction (how to implement the program, instructional activities for students, help with student self-reflection, help with teacher collaboration, and how to report student progress). There is a separate handbook for each subject area that contains sample teaching units (projects) designed to show teachers how to incorporate diagnostic evaluation of students' learning and communication processes into regular instruction. In science the diagnostic teaching units are in the areas of structures/design for grade 7 and acids/bases for grade 10.

The documents give a good rationale for the importance of the six process skills and the importance of student self-monitoring of processes. They also give extremely good advice on how to design instructional tasks that require students to use the six process skills, how to use instructional tasks as a context for student self-monitoring of process skills, and how to evaluate progress on these skills. The documents are also very useful because they have attempted to define process skills and apply them across subject matter areas. No technical information is provided. Some sample student work is provided. (620 pp)

Title of Assessment	Organization	Phone
Final Assessment: Metric Measurement, Geometry & Structures	Mill Valley Elementary School	(414/) 679-1290

Ms. Susan Wenzel
Teacher
S. 191 W. 6445 Hillendale
Muskego , WI 63150

Publication Date: March, 1994

Description: Students in grades 4 & 5 use lab equipment to demonstrate their ability to use the scientific process, solve problems and think critically, select appropriate strategies, apply scientific and mathematics principles, and test solutions. Products and performances are assessed. No technical data are available.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
First and Second Grade Assessment in Mathematics	North Carolina State Department of Public Instruction	(919) 715-1895

Dr. Cynthia Heuts
301 N. Wilmington St.
Raleigh , NC 27601-2825

Publication Date: June 1994

Description: During the 1989-90 school year, North Carolina began implementing a new program to evaluate young children's learning in a way that is consistent with how children learn and with good teaching practices. Established by a 1988 legislative mandate and designed to be used in lieu of standardized tests, the Grades 1 and 2 Assessment in Communication Skills and Mathematics gives teachers and parents a better understanding of children's academic progress, because the evaluation is based upon teachers' notes and observations made over a period of time and written samples of children's work.

The state provides participating teachers with classroom sets of profiles and notebooks which review the philosophy, discuss record keeping, and detail strategies for assessment as an integral part of the instructional program. Also provided are brochures for distribution to parents early in the school year. Each school system receives a videotape suitable for parent nights and community awareness programs.

Summaries are made two or three times a year on assessment profiles reflecting multiple sources of information. The profiles are not meant to be used as check-off sheets; rather they should be the synthesis of the anecdotal records the teacher has kept during previous weeks. A code of "M" for "most of the time," "S" for "sometimes," and "N" for "not yet," provides for an evaluative record without having the teacher make a comment on each separate objective. There is a specific profile for grade 1 and for grade 2 in mathematics. These match exactly the competency goals and objectives outlined in the state's "Standard Course of Study." The categories covered in the assessment are: numeration, geometry, classification, measurement, problem solving and mathematical thinking, understanding and using data, and computation. (133 pp)

The document is 139 pages and can be purchased from the department.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Full Option Science System -- Water Module	Encyclopedia Britannica Educational Corporation	(800) 534-9862

Publication Date: 1992

310 S. Michigan Ave.
Chicago , IL 60604

Description: The Full Option Science System is a series of hands-on instructional modules and projects with associated assessments. The module reported here is on water. There are three parts to the assessment, all of which are described in detail in the document. The first part is a series of hands-on tasks set up in stations. Examples are: "Put three drops of 'mystery liquids' on wax paper and observe what happens." and "What do your observations tell you about the 'mystery liquids'?" The answer key indicates that scoring proceeds by looking at the correctness of the response. Two different testing configurations are outlined (8 students and 24 students). Each group takes about 30 minutes.

The second part of the assessment is an open-response paper and pencil test that takes about 15 minutes. Again, it appears that responses are scored for degree of correctness. The third part of the assessment is an application of concepts in paper and pencil format that takes about 20 minutes. Again, it appears to be scored by degree of correctness.

All administration and scoring information is provided, but no technical information on the tests, nor information about typical performance is given. (10 pages)

General Exam -- SS&C Puerto Rico	Puerto Rico Statewide Systemic Initiative	(809) 765-5170

Publication Date: 1993

Dr. Rene Pico
Curriculum Coordinator
P.O. Box 23334
San Juan , PR 00931-3334

Description: This assessment is a seventh grade, end-of-year exam developed for a science curriculum reform project--Scope, Sequence, and Coordination. The test has three parts: 36 multiple-choice items covering skills such as measurement, science process, inferences, the concept of heat, and concepts in biology; three open-ended questions requiring observation and knowledge of heat transfer; and three performance items involving measurement, using equipment, and classification. Scoring guides are in Spanish. Tests are secure and are not available except at the discretion of the contact provided. (26 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Geometry Picture	UCSMP - Elementary Materials	(312) 702-9911

Mr. Bill Carroll
Evaluation & Assessment
5835 South Kimbark
Chicago , IL 60637

Publication Date: 1993

Description: This is a performance-based assessment which follows a unit on polygons and geometric constructions early in grade 4. It was administered to the whole class by the classroom teacher and worked on by individual students. The assessment submitted to NCREL was the field-test version. This has been revised and now has a 3-point, scoring rubric: "showing little understanding, making progress, or understanding and applying." The purpose is to assess students' knowledge of polygons and geometric properties, and their ability to apply this knowledge in making a picture using geometric tools (compass, straightedge, and template). Holistic scoring tied to the task also has a right/wrong score. The prototype is still under development.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
GOALS, A Performance-Based Measure of Achievement -- Math	Psychological Corporation	(800) 228-0752

Mr. Roger Ziegelman
Attn: National Sales Center
P.O. Box 839954
San Antonio , TX 78283

Publication Date: 1992

Description: GOALS is a series of open-response questions that can be used alone or in conjunction with the MAT-7, SAT-8, or any other multiple-choice norm-referenced test. Three forms are available for 11 levels of the test covering grades 1-12 in the subject areas of science, math, social studies, language and reading. Each test (except language) has ten items. The manual states that the math questions assess student problem solving, communication, reasoning, connections to other subjects, estimation, numeration, geometry, patterns, statistics, probability and algebra. Tasks require short answers. The manual draws the distinction between the approach taken in GOALS (efficiency in large-scale assessment), and the related publication "Integrated Assessment System" which has fewer tasks pursued in more depth.

Responses are scored on a scale of 0-3 where 0 is "response is incorrect" and 3 is "accurate and complete with supporting information." The scoring guide is generalized and is used for all problems. Scoring can be done locally or by the publisher. There is good assistance with scoring philosophy and procedures. There are two sample student performances for each score point for each question.

The holistic scales are combined in various ways to provide indicators of overall conceptual understanding and various specific aspects of problem solving and using procedures. These are, however, not scored directly. Rather, it is analogous to multiple-choice tests in which the correct items are combined in various ways to give subtest scores.

Both norm-referenced (percentiles) and criterion-referenced (how students perform on specific concepts) score reports are available. A full line of report types (individual, summary, etc.) are available.

The materials we obtained did not furnish any technical information about the test itself.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
GOALS, A Performance-Based Measure of Achievement -- Science	Psychological Corporation	(800) 228-0752

Mr. Roger Zigelman
Attn: National Sales Center
P.O. Box 839954
San Antonio , TX 78283-3954

Publication Date: 1992

Description: GOALS is a series of open-response on-demand questions that can be used alone or in conjunction with the Mat-7, SAT-8, or any multiple-choice norm-referenced test. Three forms are available for 11 levels of the test covering grades 1-12 for each of science, math, language, reading, and social science. Each test (except language) has ten questions. On the science test, these cover content from the biological, physical, and earth/space sciences. Each task seems to address the ability to use a discrete science process skill (e.g., draw a conclusion, record data) or use a piece of scientific information. The tasks require students to answer a question (short answer) and then (usually) provide an explanation (extended response).

Responses are scored on a four-point holistic scale (0-3) which emphasizes the degree of correctness or plausibility of the response and the clarity of the explanations. A generalized scoring guide is applied to specific questions by illustrating what a 3, 2, 1, and 0 response would be like.

Both norm-referenced (e.g., percentiles) and criterion-referenced (how students did on specific concepts) score reports are available. Scoring can be done either by the publisher or locally. A full line of report types (individual student, group summary, etc.) are available.

The materials we obtained did not furnish any technical information about the test itself.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Golden State Exam: Biology	California Department of Education	(916) 657-4298

Dr. Sue Bennett
GSE Administrator, CLAS
721 Capitol Mall
Sacramento , CA 94244-2720

Publication Date: 1993

Description: California's GSE in biology identifies and recognizes outstanding academic achievement by individual students enrolled in a high school-level first-year course in biology. Results are reported in terms of a six-level set of performance standards, which also establish benchmarks for the judgment of levels of achievement. Students who meet or surpass the standards set for honors will be awarded a certificate by the state, and receive special recognition on their diplomas and transcripts.

The 1993 GSE format included two, on-demand components (each 45 minutes long): 1) conceptual multiple-choice questions, justification questions that require a student to explain why an answer to a multiple-choice question is correct or incorrect, and short answer prompts that require students to extend their thinking about selected multiple-choice question stems; and 2) a hands-on laboratory performance task that tests a student's ability to use laboratory equipment and materials, make observations, conduct experiments, interpret results, and analyze data. An optional third component will be the GSE Science Portfolio which is being developed and pilot tested.

The open-ended and laboratory tasks are scored using a generic, six-point holistic rubric that is tailored to individual questions. The scoring is based on content knowledge, science process skills, logical thinking, and clear communication.

Contact the California Department of Education for the current "GSE Guide for Teachers and Students," which contains sample tasks and student responses (916-657-3022). (50 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Golden State Exam: Chemistry	California Department of Education	(916) 657-4298

Dr. Sue Bennett
GSE Administrator, CLAS
721 Capitol Mall
Sacramento , CA 94244-2720

Publication Date: 1993

Description: California's GSE in chemistry identifies and recognizes outstanding academic achievement by individual students enrolled in a high school–level first–year course in chemistry. Results are reported in terms of a six–level set of performance standards, which also establish benchmarks for the judgment of levels of achievement. Students who meet or surpass the standards set for honors will be awarded a certificate by the state, and receive special recognition on their diplomas and transcripts.

The 1993 GSE format included two, on–demand components (each 45 minutes long): 1) conceptual multiple–choice questions, justification questions that require a student to explain why an answer to a multiple–choice question is correct or incorrect, and short answer prompts that require students to extend their thinking about selected multiple–choice question stems; and 2) a hands–on laboratory performance task that tests a student's ability to use laboratory equipment and materials, make observations, conduct experiments, interpret results, and analyze data. An optional third component will be the GSE Science Portfolio which is being developed and pilot tested.

Laboratory and open-ended tasks are scored using a general six-point holistic rubric that is then tailored to individual exercises. Scoring emphasizes content knowledge, science process skills, logical thinking, and clear communication.

Contact the California Department of Education for the current "GSE Guide for Teachers and Students," which contains sample tasks and student responses (916-657-3022). (50 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Golden State Exam: Science Portfolio	California Department of Education	(510) 462-0283

Dr. Megan Martin
GSE Science Coordinator, CLAS
721 Capitol Mall
Sacramento , CA 95814

Publication Date: 1994

Description: A GSE Science Portfolio is an optional component that will be included in the GSE biology, chemistry, and second-year coordinated science test. Scores given to the portfolios will be combined with the multiple-choice, short-answer, open-ended and laboratory performance task as part of the total score in cases where a student's total score is improved by the portfolio score. The portfolio includes three entries: Problem-solving Investigation (design and conduct a research project), Creative Expression (express a scientific theme through use of art, poetry, videos or music), and Growth Through Writing (show progress toward mastery of a scientific theme through original writing). The portfolio highlights a student's demonstrated skills in thinking, reasoning, and problem solving. An important goal is to improve student learning through the process of self-evaluation.

In 1993, portfolios were given eight scores (on a 0 to 4 point scale): one for each of the three entries, and one for each of five "unifying qualities" (revision of work, personal and societal relevance, growth over time, collaboration, and connections among the various sciences as well as other disciplines.) The results of the GSE are reported in terms of statewide standards which identify six levels of performance and establish benchmarks of the quality of performance against which student work can be compared.

Available for review from LNP is the report "Preliminary Research Results of Portfolio Assessment: California's Golden State Examinations in Science" (5 pp), and copies of the Teachers Guide (24 pp) and the Student Guide (19 pp).

Title of Assessment	Organization	Phone
Grade 11 High School Proficiency Test (Math)	New Jersey Department of Education	(908) 984-1394

Dr. Jerry DeMorro
Director of Statewide Assessment
CN 500, 225 West State St.
Trenton , NJ 08625

Publication Date: 1993

Description: The information for this description is from two NJ State Department documents: The 1990 report of the Mathematics Committee, and the 1993 "Annotated Holistic Scoring Guide for Mathematics Constructed-Response Items." Beginning in 1994, the 11th grade High School Proficiency Test (HSPT) replaced the 9th grade HSPT as NJ's high school graduation testing requirement. New Jersey legislators and many citizens' groups have agreed that the 11th grade test is necessary to ensure that students are prepared to participate in an increasingly complex and technological society. The skills for the test were developed by committees of educators, parents, students and representatives of business, industry and the military. The philosophy adopted emphasizes: understanding rather than rote learning; applications rather than abstractions; problem solving rather than drill; thinking rather than recall.

The test measures five clusters: numerical operations, measurement and geometry, patterns and functions, data analysis, and fundamentals of algebra. Each cluster contains questions on conceptual understanding, integration of mathematical knowledge, procedural knowledge, communication, and reasoning and problem solving. The test includes both multiple-choice items and open-response items designed to provide an expanded picture of students' mathematical abilities following recommendations from the NCTM and the Mathematical Sciences Education Board. The test was constructed to allow for the use of calculators.

Three types of open-response formats are used: (1) Free-response items requiring students to construct their own written responses. Students are free to solve these in various ways. Responses are scored holistically using a "0" to "3" point rubric. (2) Grid-response items in which students use a grid to code their responses. These responses may either be numeric, alpha-numeric, or symbolic, and are scored right/wrong by machine. (3) Graphical-response items in which students graph their solutions on a grid. Scales are predetermined and axes are labeled so that solutions may be scored by machine.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Grade 3-8: Patterns, Relationships, and Pre-Algebra	North Carolina Department of Public Instruction	(919) 715-1895

Dr. Cynthia Heuts
301 N. Wilmington St.
Raleigh , NC 27601-2825

Publication Date: 6/94

Description: In 1989, North Carolina adopted the revised Standard Course of Study for Mathematics K-8. In 1991, the state began field testing open-ended and objective test items in grades 3-8 to be used as part of the end-of-grade tests. The new testing program will emphasize higher-order thinking and problem-solving. In order to assist teachers in moving to a new kind of instruction and assessment, a 60-page document titled, "Linking Curriculum, Instruction, and Assessment: The Patterns, Relationships, and Pre-Algebra Strand," was developed. It describes five to seven math objectives for each grade (3-8) and gives two sample test items (one multiple-choice and one open-ended) for each objective. Some instructional ideas for each objective are also provided. It can be purchased from the department. (65 pp)

Title of Assessment	Organization	Phone
Grade 8 Early Warning Test (Math)	New Jersey Department of Education	(908) 292-3227

Dr. Jerry DeMorro
Director of Statewide Assessment
CN 500, 225 West State St.
Trenton , NJ 08625

Publication Date: 1991

Description: The information for this description is from two NJ State Department documents: The 1990 report of the Mathematics Committee, and the 1993 "Annotated Holistic Scoring guide for Mathematics Constructed-Response Items." Beginning in March 1991, a grade eight "early-warning" test has been administered statewide in NJ. The purpose of this test is to identify students in need of remedial education services and to determine the effectiveness of the elementary curriculum in preparing students for the skills assessed by the 11th grade High School Proficiency Test. The philosophy of both emphasizes: understanding rather than rote; application rather than abstraction; problem solving rather than drill; thinking rather than recall.

The test measures five clusters: numerical operations (35%), measurement and geometry (20%), patterns and relationships (20%), data analysis (15%), and pre-algebra (10%). Each cluster contains questions on conceptual understanding (20%), integration of mathematical knowledge (25%), procedural knowledge (15%), communications and reasoning (15%), and problem solving (25%). The test includes both multiple-choice items and open-response items designed to provide an expanded picture of students' mathematical abilities following recommendations from the NCTM and the Mathematical Sciences Education Board. The test was constructed to allow for the use of calculators.

Three types of open-response formats are used: (1) Free-response items requiring students to construct their own written responses. Students are free to solve these in various ways. Responses are scored holistically using a "0 to 3 point rubric." (2) Grid-response items in which students use a grid to code their responses. Responses may be numeric, alpha-numeric or symbolic and are scored right/wrong by machine. (3) Graphical-response items in which students graph their solutions on a grid. Scales are predetermined and axes are labeled so that solutions may be scored by machine.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Group Assessment of Logical Thinking (GALT)	University of Georgia, Athens	

Dr. Michael Padilla
Professor
212 Aderhold Hall, University of Georgia
Athens , GA 30602

Publication Date: 1983

Description: The two documents we received describe an on-demand enhanced multiple-choice test to assess level of student development from "concrete" to "formal logical thinkers" (based on Piaget). The test has 21 items for students with a reading level of grade six and above. Six logical operations are assessed: conservation, proportional reasoning, controlling variables, combinatorial reasoning, probabilistic reasoning, and correlational reasoning. Content is taken from the sciences and daily life. Each item is presented pictorially. The student chooses both a statement he or she believes is true about the situation pictured, and the reason for this choice. All items are multiple-choice except for the combinatorial reasoning items for which students list all possible combinations.

There is technical information to support the conclusion that the test can distinguish groups at concrete, transitional, and formal stages of development. The authors recommend using the information obtained to design instruction at the proper developmental level for students. No concrete examples of how to do this are provided. (52 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Group Problem Solving in Biology and the Environment	University of Reading, England	0734 318867

Dr. Christopher Gayford
Head of Department
Dept of Science and Technology Ed, Univ. of Reading
Reading, Berkshire , England RG6 1HY

Publication Date: 1993

Description: This review is based on three articles: "A contribution to a methodology for teaching and assessment of group problem solving in biology among 15-year old pupils," Journal of Biological Education, vol. 23, 1989, pp. 193-198; "Patterns of group behavior in open-ended problem solving in science classes of 15-year-old students in England," Int. J. Sci. Educ., vol. 14, 1992, pp. 41-49; and "Discussion-based group work related to environmental issues in science classes with 15-year-old pupils in England," Int. J. Sci. Educ., Vol. 15, 1993, pp. 521-529.

The author reports on a series of related studies in which secondary students engaged in group work are assessed on a variety of skills such as group process, problem solving, attitudes, and science process. The purposes of the studies were to: (1) explore the use of group discussion as a way to develop and exercise skills such as communication, problem solving, and numeracy; (2) discover how students approach problem solving tasks; and (3) describe the group dynamics of students engaging in group problem solving tasks. The papers are included in this database because of the assessment devices developed by the author to examine student problem solving and process skills.

The specific tasks in which students were engaged in these studies were discussions of controversial issues about the environment and practical hands-on investigations in which students were to determine the best source of a substance or the amount of water needed by various plants. Students worked in groups and provided extended responses. Each task took from 60-90 minutes. Performance was assessed using a variety of scoring guides, the most detailed of which was a generalized rubric assessing ability to state the problem, ability to work cooperatively as a team, quality of reasons for choice of design, ability to modify the design as a result of experience, and ability to evaluate success. Performance was rated on a three-point scale.

The papers include a good enough description of the tasks and scoring procedures that they could be reproduced. The paper also includes information about student performance on the tasks. No other technical information nor sample student responses are included.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Handbook for Designing Alternative Assessments in Math and Science	Albemarle County Public Schools	(804) 296-5888

Dr. Laurie McCullough
Instructional Director
401 McIntire Rd
Charlottesville , VA 22902

Publication Date: 10/20/92

Description: This handbook was produced with support from Eisenhower math and science funds. Produced as a staff development focus for district teachers, the handbook provides information on several topics related to alternative assessments. The table of contents includes:

Overview of new assessment methods
Performance tasks: Assessing process and reasoning skills
Open-ended questions: Assessing content learning
Projects and investigations
Incorporating authentic assessments into unit design
Documenting student progress using portfolios
References

The handbook provides teachers with background on the values and purposes of various types of alternative assessments, samples, and scoring rubrics for the instruments.

Note: This handbook is a nice example of locally produced materials for staff development.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Hands-on Science Process Test	University of Texas-Dallas	(214) 690-2496; FAX (214) 690-2409

Dr. Cynthia E. Ledbetter
Assistant Professor
Box 830688, FN 32
Richardson , TX 75038-0688

Publication Date:

Description: The Hands-on Science Process Skills Test was developed by Drs. Cynthia E. Ledbetter and Fred L. Fifer. It has been used for teacher inservices and is currently one of the measures used for evaluating Coordinated Thematic Science. The test is designed for use with 7th and 8th grade students. In use for approximately 3-1/2 years, the test measures student ability to make observations, measure using scientific equipment, classify objects, make predictions, draw conclusions, communicate data, make logical inferences, and describe experiments. These are processes and are not tied to content knowledge. The test is administered to groups of students who manipulate objects at each of six laboratory stations. Questions require short, open-ended, written responses and are scored both holistically and analytically.

Instructions for set-up and administration, suggested laboratory station designs, testing directions, and answer booklet are available from SEDL (see the LNP contact list) and may be used for research purposes only. Administration of the test to students may not be undertaken without permission from the authors and the Texas Education Agency. Anyone wishing to administer the test must satisfactorily complete training to administer and appropriately score the instrument.

Publication of all or any portion of the copyrighted test materials requires permission and citation of the authors. In addition to the source listed, information may be obtained form Dr. James Collins at the Texas Education Agency in Austin, TX, (512) 463-9556.

How I Use Portfolios in Math	Twin Peaks Middle School, Poway Unified School District	

Ms. Pam Knight
Teacher
14012 Valley Springs Rd.
Poway , CA 92064

Publication Date: 1992

Description: The information for this summary comes from the article "How I Use Portfolios in Math," Educational Leadership, 49, 1992, pp. 71-72. The author describes her first year experimentation with portfolios in her middle school algebra classes. She had her students keep all their work for a period of time and then sort through it to pick entries that would best show (1) their effort and learning in algebra, and (2) the activities that had been the most meaningful. There is some help with what she did to get started and discussion of the positive effects on students. There is some mention of performance criteria, but no elaboration. One student self-reflection is included, but no technical information. (2 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Howard County Physical Science Assessment	Howard County Public Schools	(401) 313-6614

Ms. Joan Abdallah
Supervisor of Science
10910 Route 108
Ellicott City , MD 21043

Publication Date: 1993

Description: The elementary science assessment tasks are designed for grades 1-5. They are administered to classroom groups in about 50 minutes. Laboratory equipment is needed. Scoring is done by means of checklists tied to individual tasks. No technical information is available. Tasks are under development. Samples are available but are not ready for distribution. Tasks were piloted in the 1993-94 school year. Modifications are being made based on feedback.

Title of Assessment	Organization	Phone
Indiana Performance Assessment '92	Indiana University	(812) 855-1236

Dr. Roger Farr
Director, Center for Reading and Language Studies
2805 E. 10th Street, Suite 150
Bloomington , IN 47408-2698

Publication Date: 1992

Description: The Indiana Performance Assessment '92 is an alternative assessment for use with all student in grades 10, 11 and 12. Students are given a written set of directions including a setting (or problem description) and a number of open-ended questions requiring the interpretation and construction of graphs, application of mathematical principles, prediction and problem solving. The materials we have include four problem situations: bicycle racing, oil spills, developing a promotional plan for a security system, and towing icebergs to Los Angeles.

Responses are scored for science process skills, math problem solving, habits of mind and communication. However, no specific criteria for scoring student responses, technical information, nor sample student performances are included in the materials we received. (30 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Indiana University Student Assessment '94	Indiana University	(812) 855-1236

Dr. Roger Farr
Director, Center for Reading and Language Studies
2805 E. 10th Street, Suite 150
Bloomington , IN 47408-2698

Publication Date: 1994

Description: This document is a post-secondary alternative assessment in mathematics designed to assess the mathematical reasoning and problem-solving skills of adult workers. Extended responses (written and visual) are given to a task in which students read a scenario, review graphs and data related to the problem, and respond to a series of open-ended questions requiring application of mathematical reasoning and problem-solving. Responses are scored for reasoning, understanding of mathematical concepts, use of procedures, and communication using a four-point scale.

The materials we received consisted of two task scenarios--icebergs and blood testing. Scoring rubrics were not included. Technical data and sample student responses are available, but not included in the documents we received. Availability is restricted; contact the author for permission to use. (21 pp)

Title of Assessment	Organization	Phone
Instructional Assessments: Lever for Systemic Change	Educational Testing Service	

Dr. Brian Gong
Research Scientist
Rosedale Road
Princeton , NJ 08541

Publication Date: 1992

Description: The information for this review came from: "Instructional Assessments: Lever for Systemic Change in Science Education Classes," Journal of Science Education and Technology, Vol. 1, 1992, pp. 157-176. The authors discuss and show examples of "instructional assessment" in which tasks designed to gather information about the status and progress of students also provide valuable learning experiences, incorporated into the curriculum and instruction of the classroom. Thus, the assessment is also an episode of learning. Additionally, the assessment unit is designed to model good instruction including hands-on projects and group work.

The authors have developed and piloted sample units that deal with central science themes, explanatory principles, and causal models within the context of water resources, tools/technology, meteorology, and control systems. The Tools and Technology and Water Resources units are briefly described in the paper.

Preassessment activities gather information about things like student attitude about the topic, previous experience, and prior knowledge. There are also interpretive schemes that provide an analytical guide for interpreting knowledge, skill, and attitude components of the students' performance on the unit. (The article does not provide much detail.)

The paper includes a lengthy discussion of the philosophy behind the approach, an example of a computer-scored preassessment, and discussion of the impact instructional assessment has had on teachers (perceptions, science knowledge, awareness of students, teaching methods, and professional interactions). There is not enough information on the actual units to implement them. No other technical information is provided. (20 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Integrated Assessment System -- Math Performance Assessment	Psychological Corporation	(512) 270-0358; (800) 228-0752

Dr. Marilyn Rindfuss
Mathematics Consultant
555 Academic Court
San Antonio , TX 78204

Publication Date: 1992

Description: This is a series of 14 on-demand tasks designed to be used with students in grades 2-8. Two task booklets were designed for each grade level, but can also be used in spring testing of the grade below or fall testing of the grade above. Each task booklet presents a problem situation that is applied to a series of short-answer questions. For example various task booklets focus on symmetry, breaking a tie in an election, planning an orchard to maximize yield, and bar codes. Questions involve such things as figuring out an answer and explaining how the solution was reached, and generating a principle and applying it to a new situation.

Solutions are scored either holistically (0-6) or analytically (four, 4-point scales). The performance criteria represent generalized features of problem solving and so can be used to score performance on any task. The holistic scale is used to provide an overall picture of performance; raters look for quality of work, evidence of understanding of concepts, logical reasoning, and correct computations. The analytical traits are: reasoning, conceptual knowledge, communication, and procedures. Scoring can be done either locally or by the publisher.

The set of materials we obtained includes a brief description of the scoring rubrics and one example of a scored student test. Technical information was not included.

Title of Assessment	Organization	Phone
Integrated Assessment System -- Science Performance Assessment	Psychological Corporation	(800) 228-0752

Publication Date: 1992

Attn: National Sales Center
P.O. Box 839954
San Antonio , TX 78283-3954

Description: This is a series of seven on-demand tasks designed to be used with students in grades 2-8 (one task per grade level). The hands-on tasks involve designing and conducting an experiment based on a problem situation presented in the test. Students are provided various materials with which to work. Students may work individually or in groups, but all submitted products must be individually generated. Students generate a hypothesis they wish to test, write down (or show using pictures) the procedures used in the experiment, record data, and draw conclusions. At the end, students are asked to reflect on what they did and answer questions such as: "What problem did you try to solve?" "Tell why you think things worked the way they did." and "What have you seen or done that reminds you of what you have learned in this experiment?" The final question in the booklet asks students how they view science. This question is not scored but can be used to gain insight into students' performance.

Only the written product in the answer booklet is actually scored. (However, the publisher recommends that teachers watch the students as they conduct the experiment to obtain information about process. A checklist of things to watch for is provided.) Responses can be scored either holistically or analytically using criteria generalized so that they can be used with any task. The holistic scale (0-6) focuses on an overall judgment of the performance based on quality of work, conceptual understanding, logical reasoning, and ability to communicate what was done. The four analytical traits are experimenting (ability to state a clear problem, and design and carry out a good experiment), collecting data (precise and relevant observations), drawing conclusions (good conclusions supported by data), and communicating (use of appropriate scientific terms, and an understandable presentation of what was done). Traits are scored on a scale of 1-4. Scoring can be done either locally or by the publisher.

There is a scoring guide that describes the procedure. However, in the materials we obtained, there are no student performances provided to illustrate the scores. No technical information is included.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Integrated Science	CCET-University of Alabama	(205) 348-2470

Ms. Star Bloom
Co-Director
University of Alabama-CCET
209 Temple Tutwiler
Tuscaloosa , AL 35487-0167

Publication Date: 6/93

Description: Integrated Science is a middle school science instructional program based on the National Science Teachers' Association's Scope, Sequence, and Coordination ideas. Students examine a small group of topics from multiple perspectives (biology, earth/space science, chemistry, physics). The instructional program has three components: video telecasts three times per week, coordinated hands-on activities for teachers, and a student handbook which includes homework assignments. Assessments for use with the videos and hands-on activities along with more summative kinds of assessments are currently being developed. An example of one week's daily, formative assessment questions is available for grade 8 (approximately 10 pages) as is an example of a grade 7 summative assessment covering several weeks (6 pages). These assessments are being developed for classroom teachers, not large-scale assessment.

Title of Assessment	Organization	Phone
Investigating Mealworm Feeding Patterns	SC State Systemic Initiative	(803) 656-1863

Dr. Tom Peters
Director, AOP HUB, SC State Systemic Initiative
Sears House
Clemson , SC 29634-1902

Publication Date: unpublished

Description: This assessment was developed to assist grade 4 teachers and students in preparing for an optional 1994 performance assessment portion of the state's mandated Texas Assessment of Academic Skills. It consists of two tasks related to raising mealworms in a commercially viable manner. Students work individually or in small groups to plan, describe, and conduct an experiment (making revisions to the plan as necessary), and to summarize results based on observations, charts, and graphs they prepare. The first task (which includes the plan, experiment, and communication of results) is scored via a checklist of twelve process skills which is provided to students prior to the task. The second task requires students to consider other factors (using outside resources as needed) in designing a long-term feeding strategy for the millirems. No scoring guide is provided for this second task.

The assessment has been administered to students on a limited basis. Contact the developer for more information. Educators may copy materials.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
K-5 Mathematics Program Evaluation	Dwight D. Eisenhower Project, University of Central Florida	(407) 823-6076

Dr. Michael C. Hynes
Professor
Education 146, University of Central Florida
Orlando , FL 32816-1250

Publication Date: 1993

Description: In cooperation with a team of educators throughout the state of Florida, the author has produced a handbook intended to provide schools with the tools to assess the K-5 mathematics program dimensions of: student outcomes, program goals, curriculum, learning environment, learning resources, program support, evaluation, and equal access. The handbook includes sample instruments for each area. Most of these are surveys except for assessment of student outcomes.

Seventeen sample performance tasks (8 for primary and 9 for grade 5) are included to assess various student outcome goals. These are open-ended (there is more than one correct answer) and most require explanations of and rationale for procedures used. Tasks do not require manipulatives; all are written/visual. All tasks are done individually; there is no group collaboration. Performance is rated using a generic 4-point scale--"Exemplary (Level A)" to "No Attempt (Level E)." An Exemplary response is one which: "Provides excellent responses in all areas of problem solving, reasoning, communication, connections, and mathematics content. Goes beyond the excellent category. Shows creative thinking, elegant communication, and/or unique approaches to the problem. Uses additional information to extend the solution." A sample student response for each score point is included to illustrate the scoring procedure.

A sample "School Report Card" is included to illustrate "a succinct way to report the results" of all surveys and assessments.

The handbook includes a disk containing each of the instruments, the School Report Card and the scoring rubric. No technical information is included. The author has granted permission for educators to reproduce materials for use with students. (117 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment **Organization** **Phone**

Kansas Math Assessment
Kansas State Department of Education
(913) 296-2303

Dr. Sharon Freden Harrison
Kansas State Education Building, 120 SE 10th Ave.
Topeka , KS 66612

Publication Date: 1991

Description: The document we reviewed is "Kansas Mathematics Standards and Kansas Statewide Pilot Assessment Results, 1991." It includes an overview of the 1991 Kansas pilot on-demand math assessment and a description of results. Grade 3, 7, and 10 students were tested. The pilot included both multiple-choice and open-performance problems. The performance assessment portion entailed giving 1/6 of the students tested one task each. A total of 31 tasks were used altogether in the three grades. Nine problems are included in the report.

Written responses were scored using both a holistic scale (0-6) for overall correctness of response, and a four-trait analytic model focusing on problem-solving processes (understanding the question, planning, implementing the strategies selected, and verifying the results). Each trait is rated on a six-point scale (A-F). Scoring guides are included, but detailed instructions and sample student work are not.

Some information on student performance is included, but no other technical information on the test itself is included.

Kentucky Instructional Results Information System
Kentucky Department of Education
(502) 564-4394

Dr. Cheryl Tibbals
Director, KIRIS Division
Capitol Plaza Tower, 500 Mero St.
Frankfort , KY 40601

Publication Date: 1991-92

Description: This document contains the released sets of exercises and related scoring guides from Kentucky's 1991-92 grade 4, 8, and 12 open-response on-demand tests in reading, math, science, and social studies. It does not contain any support materials such as: rationale, history, technical information, etc.

There are three to five short-answer tasks/exercises at each grade level in each subject. Most are open-response (only one right answer), but some are open-ended (more than one right answer). Examples in math are: write a word problem that requires certain computations, determine how many cubes are needed for a given figure, follow instructions, explain an answer, arrange a room, explain a graph. Examples in science are: experimental design for spot remover, graphing and interpreting results of a study on siblings, and predict the weather from a weather map. Scoring for each exercise/question is holistic/primary trait. Each exercise has its own set of scoring criteria.

The contact person has given educators permission to copy this document for their own use. (105 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Key Competencies in Mathematics Assessment	Albuquerque Public Schools (APS)	(505) 764-9711

Dr. Michael DuPuis
Coordinator of Testing and Assessment
930-A Oak St. S. E.
Albuquerque , NM 87106

Publication Date: 1992

Description: 1994-95 is the final year of use for these K-5 optional assessments, originally created in accordance with the New Mexico State Department of Education's articulated competencies in mathematics in order to diagnose both student learning and school accountability. The assessments are being completely revised to align with the NCTM Curriculum and Evaluation Standards and to include some performance assessment. The current versions are composed of student activities (conducted both individually and in small groups) accompanied by checklists based on teacher observations. Teacher's Guides explain key competencies in mathematics assessment and directions for activity-based testing. The assessments are designed to be an integral part of instruction, to be administered throughout the year, and to enable teachers to draw conclusions regarding students' instructional needs, perceptions of mathematical ideas and processes, achievement of curriculum goals, and individual areas of strength /weakness. The assessments are scored on a 3-point scale (most of the time, some of the time, not yet/no mastery), and cover the areas of whole numbers, fractions, decimals, geometry, measurement, percent, charts & graphs, number theory, and logic. Educators may copy materials.

Title of Assessment	Organization	Phone
Kindergarten Developmental Progress Record (KDPR)	Albuquerque Public Schools	(505) 764-9711

Mr. Micahel DuPuis
Coordinator of Testing and Assessment
930-A Oak St. S.E.
Albuquerque , NM 87106

Publication Date: 1980-81

Description: This checklist, based on teacher observations, is used for district and state mandated assessment of developmental progress of kindergarten students. The optional assessment is accompanied by a teachers guide containing activities to determine the extent of developmental progress. The categories covered include Social/Emotional Development, Physical Development, and Intellectual Development. The final category, in addition to assessing progress in social studies, language arts/reading, and fine arts, assesses four areas of student development or progress in science/health: 1) observes, investigates, experiments, predicts, describes; 2) participates in multisensory experiences; 3) is developing environmental awareness, and 4) demonstrates knowledge of nutrition, hygiene, safety--and six areas in mathematics—1) counts using one-to-one correspondence, 2) identifies numbers, 3) compares, estimates, measures, 4) uses math vocabulary, 5) identifies shapes and coins, and 6) classifies and organizes material. The checklist is scored on a five-point scale indicating for each specified area strength, growth, needs more time/experience, not assessed, introduced at this time or area of special need/concern. Educators may copy materials.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Large Group Oral Examination	Carthage College	(414) 551-5724

Dr. Barbara L. Boe
Professor of Education
2001 Alford Drive
Kenosha , WI 53140

Publication Date: Not yet known

Description: This technique, large group oral exam, is one alternative assessment approach for grades 5-8 that is designed to reduce anxiety and to promote cooperative learning, group interaction, and consensus building. It is especially appropriate for classes where cooperative learning and critical thinking are dominant instructional strategies. It is effective in courses where issues are debated, such as reduction/destruction of the rain forest.

The materials we received describe the use of a group oral exam for college education students. The final exam consisted of group consensus building on the goals for education in the US. The author discusses the use of the "Student Record of Behavior" to assess group interaction and on-task behavior, but this instrument is not included in the document we received. No other specific guidelines for assessing performance were discussed. No technical information was included. (13 pp)

LEAP Grade 7 Mathematics	Louisiana Department of Education	(504) 342-3748; FAX (504) 342-3684

Ms. Rebecca S. Christian
Education Bureau Administrator
P.O. Box 94064
Baton Rouge , LA 70804-9064

Publication Date:

Description: The Louisiana Department of Education has developed a prototype Grade 7 mathematics test as a research vehicle to provide information about cognitive skill levels. Students use calculators and some manipulatives. The test requires open, written responses (short and extended answers). It was administered to 700 seventh grade students in April 1993, and was scored holistically by a committee of teachers, math supervisors, university personnel and Louisiana Department of Education personnel. Scoring guides and benchmark performances were then developed.

An administrator's manual containing instructions and a summary report is also available.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Learning Logs	Illinois Mathematics & Science Academy	(708) 801-6070

Dr. Michael Palmisano
Director of Assessment and Research
1500 West Sullvian Road
Aurora , IL 60506-1000

Publication Date: 1/26/93

Description: Learning Logs are metacognitive assessments (students reflections on their learning) focused on raising questions and identifying connections of 11th and 12th grade important ideas. Logs are embedded in lab notebooks (science) and used as an essential classroom assessment (social science). Logs generate information guiding future learning decisions for students and future teaching decisions for faculty.

Teacher and student reactions are available, but technical data are not.

Title of Assessment	Organization	Phone
Level Three Mini ESPET	Onondage-Cortland-Madison Boces Science Services	(315) 433-2671

Mr. Michael S. Flood
Coordinator of Science Services
Henry Education Campus
P.O. Box 4774, 6075 East Molloy Road

Syracuse , NY 13210

Publication Date: 4/06/93

Description: This is a guide to building and administering a multi-station hands-on performance assessment for sixth grade students. The packet is approximately 50 pages in length and consists of detailed instructions on how to set up the test. A student question/answer sheet and scoring rubric is included. Students are asked to perform experiments, collect data and then make statements and answer questions based on their results.

Title of Assessment	Organization	Phone
Manipulative Skills Test Grade 5	CSD - 31, New York City	(718) 447-3300

Ms. Mary Beth McCarthy
Science Coordinator
211 Daniel Law Terr.
Staten Island , NY 10306

Publication Date: 2/22/93

Description: Children manipulate science materials, then answer questions and fill in data tables. In addition, they are asked to write a generalization after analysis of the data.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Map Tests	NIE	(414) 229-5097

Dr. John Surber
Associate Professor
Dept of Ed Psych, U of Wisc, Milwaukee
Milwaukee , WI 53201

Publication Date: 1981

Description: Our review is based on four reports from the author: "Testing for Misunderstanding" (Surber & Philip Smith, Educational Psychologist, 1981, 16, pp. 165-174); "Technical Report 1, Structural Maps of Text as a Learning Assessment Technique" (Surber, Smith & Frederika Harper, undated, U of WI); "Technical Report #6, The Relationship Between Map Tests and Multiple-Choice Tests" (Surber, Smith & Harper, 1982, U of WI); and Mapping as a Testing and Diagnostic Device (Surber, Spatial Learning Strategies, 1984, Academic Press, pp. 213-233). These reports and papers describe the development of map tests as an assessment technique to identify conceptual misunderstandings that occur when students learn from text. The purpose is to diagnose student understanding in order to plan instruction. In this testing technique, the test developer graphically represents concepts and their interrelationships in a cognitive map. Then, information from the map is systematically removed. Students complete the map shells. Four different levels of deletion associated with different types of content clues are described. Maps are scored by comparing the student-completed version to the original. Scoring involves looking both at the content included or omitted from the map and the proper relationship between this content. Report #6 describes scoring in more detail.

The authors did a series of studies on this technique, reported on in "Mapping as a Testing and Diagnostic Device." They found good inter-rater reliability and good consistency between developers of "master maps." They report on comparisons to multiple-choice tests.

Text maps and tests can be constructed in any content area at any grade level. The specific examples in these materials come from chemistry (matter), study skills, and sociology (the development of early warfare).

A manual, designed to teach students how to construct concept maps, is included in Report #1. The author has given educators permission to copy these documents for their own use (80 pp plus journal articles).

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Martinello Open-ended Science Test (MOST) [Performance Task of Scientific Observation and Inferential Thinking]	University of Texas at San Antonio	(210) 691-5403; FAX (210) 691-5848

Dr. Marian L. Martinello
Professor
Division of Education, University of Texas at San Antonio
San Antonio , TX 78249

Publication Date: Reported in Journal of

Description: Designed to be administered as a pretest and posttest of scientific observation and inferential thinking in children grades 2-5, this test uses natural objects (plants and animals) to assess student abilities to observe with precision, infer, and ask questions. The focus is on process. A child is given an unknown object to examine (e.g., a crinoid, sweet gum seedpod, oak gall) and is asked to respond to three specific questions.

The test may be administered to individual children by soliciting oral responses or to class groups of children by soliciting written responses. All responses are open-ended. Responses are coded, using codes assigned for descriptors, inferences, and questions. Analytical scoring is used. Scoring guidelines and examples are available for each assigned code. Also, five samples of coded student written responses are available.

The test is copyrighted, but copies may be obtained from the author. For additional information, see "Developing and Assessing Lower-SES Children's Inferential Thinking Through a Museum-School Program," Journal of Elementary Science (Summer, 1990), Vol. 2, pp 21-36.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Maryland School Performance Assessment Program	Maryland Department of Education	(410) 333-2369

Dr. Steven Ferrara
Coordinator, Assessment Team
200 W. Baltimore St.
Baltimore , MD 21201

Publication Date: 1992

Description: This review is based on four documents: (1) Maryland has released six performance tasks that illustrate the 1992 assessment. This review is based on three of them, one task at each of grades 3, 5 and 8. (2) Teacher to Teacher Talk: Student Performance on the MSPAP, 1992. (3) Scoring MSPAP: A Teacher's Guide, 1993. (4) An Analysis of the Technical Characteristics of Scoring Rules for Constructed-Response Items, 1992. The current form of assessment appears to have begun in 1991. The purposes are program evaluation, curriculum evaluation, and school accountability.

The on-demand assessment tasks are integrated across subject areas and use various combinations of information and skills in science, math, writing, reading, and social studies. The three released tasks we have relate to the weather (Grade 3), snowy regions of the country (Grade 5) and collisions (Grade 8). Each task has both individual and group work and proceeds through a series of tasks that require reading, designing and conducting experiments, observing and recording information, and writing up results. Additional sample tasks with illustrative student responses and a general overview of the MSPAP scoring process are provided in "Scoring MSPAP: A Teacher's Guide."

Student written products are scored using two basic approaches: generalized holistic or analytical trait scoring guides for the "big" outcomes such as communication skills, problem solving, scientific process, and reasoning; and specific holistic ratings of conceptual knowledge and applications. For example, the task on collisions is scored both for knowledge of the concepts of mass and rate/distance, and for general science process skills (collecting and organizing data, and observation) and communication skills. Thus some scoring guides are generalized across tasks, and some list specific features to watch for in individual tasks.

Anchor performances are not included for all the tasks in the package. The only information about student performance in this set of documents comes from "Teacher to Teacher" in which teachers discuss what they learned about students from participating in the scoring sessions. Technical information comes from "An Analysis of the Technical

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Massachusetts Educational Assessment Program -- Math Open-Ended and Performance Tasks	Massachusetts Department of Education	(617) 338-3300 x321

Dr. Beverly Marras
Director, Mass. Educational Assessment Program
350 Main St.
Malden , MA 02148

Publication Date: 1989-1990

Description: The document we received contained assessment materials for grades 4, 8 and 12 from three years (1988-1990) in four subject areas (reading, social studies, science, and math). This entry describes the math portion of the assessments. The 1988 and 1990 materials described open-ended test items in which students had to solve a problem and then explain their answer. In 1988, eight problems were administered to each of the three grades (some problems were repeated between grades). In 1990, ten problems were administered. These problems emphasized the major areas of patterns/relationships, geometry/measurement, and numerical/statistical concepts. All problems were done individually with extended written responses. Problems were distributed in such a way that different students responded to different questions. Responses were scored both for correctness of solution and for quality of the explanation. No specific criteria for judging quality of explanation were given. Many examples of student responses illustrating various conclusions are included.

In 1989, a sample of 2,000 students was assigned one of seven performance tasks (the four in math required manipulatives) to do in diads. Each pair was individually watched by an evaluator. Each evaluator could observe between six and ten pairs each day. It took 65 evaluators five days to observe the 2,000 performances. Evaluators were to both check-off those things that students did correctly (e.g., measured temperature correctly), and record observations of students' conversations and strategies as completely as possible. A sample checklist of skills includes: measuring, proportional reasoning, equivalency, numeration, attitude, and planning/execution.

Some information on results for all the assessments is provided: percentages of students getting correct answers, using various strategies, using efficient methods, giving good explanations, etc., depending on the task. Many examples of student responses illustrating these various points are provided. No technical information about the assessments themselves is provided. (90 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Massachusetts Educational Assessment Program -- Science Open-Ended and Performance Tests	Massachusetts Department of Education	(617) 388-3300 x321

Dr. Beverly Marras
Director, Mass. Educational Assessment Program
350 Main St.
Maldon , MA 02148

Publication Date: 1989-1990

Description: The documents we received contain assessment materials for grades 4, 8 and 12 from three years (1988-1990) in four subject areas: science, math, social studies, and reading. This entry describes the science portion of the materials.

The 1988 and 1990 materials describe open-ended test items in which students were given a written problem in which they had to apply concepts of experimental design or use concepts in life or physical sciences to explain a phenomenon. In 1988 there were three problems given to fourth graders, seven given to eighth graders, and eight given to twelfth graders. In 1990 three problems were given to fourth graders and four to eighth and twelfth graders. Some of these were repeated across grade levels. All problems are included. Extended written responses were analyzed for ability to note the important aspects of designing an experiment or ability to apply scientific concepts to explain phenomena. No specific performance criteria or scoring procedures are provided. However, there is extensive discussion of what students did, illustrated by sample responses.

In 1989, a sample of 2,000 students was assigned one of seven performance tasks (the three in science required lab equipment and manipulatives) to do in pairs. Each pair of students was individually watched by an evaluator. Each evaluator could observe between six and ten pairs each day. It took 65 evaluators five days to observe the 2,000 performances. Evaluators were to both check-off those things that students did correctly (e.g., measure temperature), and record observations of students' conversations and strategies. Again, detailed scoring procedures are not provided. There is, again, much discussion of observations illustrated by samples of student responses.

Some information about overall results for all the assessments is provided: Percentages of students getting correct answers, using various strategies, using efficient methods, giving good explanations, etc., depending on the task. No technical information about the tests themselves is provided. (90 pp)

Matching Trigonometric Graphs	The Ohio State University	(419) 755-4247/4236/4011

Dr. Thomas Gregory
Associate Professor of Mathmatics
1680 University Drive
Mansfield , OH 44906-2909

Publication Date:

Description: Students in grades 11 and 12 and post-secondary students are shown transparencies of graphs of trigonometric functions. They are given about 30 seconds to view each graph. They match the graphs in groups of 5 with functions on the "Graph Quiz" list, and record their answers on computer-scored answer sheets. This is a test that utilizes an "enhanced multiple-choice" format. No technical studies are reported.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Math Assessment	Fillmore Unified School District	(805) 524-0280

Dr. Mario Contini
Assistant Superintendent for Educational Services
P.O. Box 697
Fillmore , CA 93105

Publication Date: 1992

Description:

Title of Assessment	Organization	Phone
MATHA - Mathematics Assessment: The Hoosier Alternative	Indiana Department of Education	(317) 232-9155

Dr. Donna Long
Mathematics Supervisor, Indiana Dept. of Education
State House Room 229
Indianapolis , IN 46204-2798

Publication Date: Draft 9-93
FINAL 5-94

Description: MATHA is a teacher developed model for integrating curriculum, instruction and assessment. It reclaims assessment for classroom teaching and learning. It's a model of teachers teaching teachers to utilize assessment for improving classroom learning.

The materials we received are handouts from a 1-1/2 day training session for K-12 teachers that focuses upon three key elements of alternative classroom assessment:
1) Questioning Strategies/Techniques: What kinds of classroom questions promote higher level thinking and understanding about mathematics?
2) Portfolios: What kinds of documents show growth in understanding of mathematics? Who decides? How do we evaluate them?
3) Performance Assessment: How do we develop/select meaningful tasks? What kind of rubric is appropriate? How do we communicate results? What about grades?

Some sample assessment materials (rubrics, tasks, etc.) are included. Sample student work in response to a prompt about how computers have changed use of mathematics is also included. No technical information is included. (33 pp)

Title of Assessment	Organization	Phone
Mathematics Assessment Questionnaire (MAQ): A Survey of Thought and Feelings for Students in Grades 7-9	Center for Advanced Study in Education, Graduate School, City University of New York	(212) 642-2986

Dr. Carol K. Tittle
33 West 42nd Street
New York , NY 10036

Publication Date: 1990

Description: The purpose of the Mathematics Assessment Questionnaire is to survey student thoughts and feelings about learning mathematics in classroom activity settings and to provide information that complements assessments of mathematical understandings. The questionnaire has 143 statements asking students about their awareness of: self-regulatory thinking and skills, affective beliefs (interest, value, confidence, anxiety), and motivational and attributional beliefs. These are assessed in the context of three instructional activity settings: during class*, working with other students, and homework.

The questionnaire is available as part of a computer-based classroom assessment package. The package includes student and teacher computer-based programs for administration and review, and a teacher guide. Both the teacher guide and the teacher computer program include instructional suggestions linked to each area of assessment.

Two reports are available: "Mathematics Assessment Questionnaire: A Survey of Thoughts and Feelings for Students In Grades 7-9 -- Technical Report" and "--Manual for Users, 1990" City University of New York, 33 West 42nd St., New York, NY 10036.

*Two versions of self-regulatory statements are available for the during-class activity setting: (D) direct instruction model; (A) alternate, class-centered instruction model.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Mathematics Curriculum Profile	Curriculum Corporation	(03) 639-0699; FAX (03) 639-1616

Mr. David Francis
Executive Director
St. Nicholas Place, 141 Rathdowne St.
Carlton. Victoria , Australia 3053

Publication Date: 1994

Description: This review is based on three documents: "Mathematics--a curriculum profile for Australian schools," "Using the Mathematics Profile," and " Mathematics--work samples," all 1994. These represent the mathematics portion of a series of publications designed to reconfigure instruction and assessment in Australian schools. The project, begun in 1989, was a joint effort by the States, Territories and the Commonwealth of Australia initiated by the Australian Education Council.

The profiles are not performance assessments per se in which students are given predeveloped tasks. Rather, the emphasis has been on conceptualizing major student outcomes in each area and articulating student development toward these goals using a series of developmental continuums. These continuums are then used to track progress and are overlaid on whatever tasks and work individual teachers give to students.

The math profiles cover the major strands of: working mathematically, space, number, measurement, chance/data, and algebra. Each strand has subareas called "organizers." For example the strand of "working mathematically" contains the organizers of: investigating, conjecturing, using problem solving strategies, applying and verifying, using mathematical language, and working in context. Each organizer is tracked through eight levels of development. For example, the organizer of "using mathematical language" has "talks about mathematical ideas in natural language" at Level 1, and "makes fluent use of mathematical notation in solving problems and presenting arguments succinctly, coherently and in conventional forms" at Level 8.

There are lots of support materials that describe what each strand means, how to organize instruction, types of activities to use with students, and how to use the profiles to track progress. Samples of student work are included to illustrate development. The documents say that the levels have been "validated," but this information is not included in the materials we received. (450 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Mathematics: Instructional Block Assessments	Anne Arundel County Public Schools	(410) 222-5464

Ms. Cleo Campbell
Coordinator of Mathematics
2644 Riva Road
Annapolis , MD 21401

Publication Date: 1993

Description: Assessments are developed at the level of the average learner in grades 2-8. They assess the main points during a given instructional block (9 week period): arithmetic, measurement, algebra, geometry, statistics and/or probability. Each assessment has two parts: traditional and performance assessment. Samples are included. Scoring is done by assigning points for the presence of specific features of the response. Also scored are content knowledge, process, and student ability to communicate their ideas in sentence format. Availability is under discussion. (Student materials: 8 pages; teacher materials: 15 pages.)

Title of Assessment	Organization	Phone
Mathematics Pupil Evaluation Program -- NYSTP	New York State Education Department	(518) 474-5900

Ms. Mary Corrado
Coordinator of Test Development Activities
Room 760-EBA
Albany , NY 12234

Publication Date:

Description: These two statewide student assessments are based on the state syllabus, Mathematics K-6: A Recommended Program for Elementary Schools, which outlines those math understandings that students should achieve in grades K-3 and grades 4-6. The two assessments are administered at the end of grades 3 and 6. All items on both assessments use a multiple-choice format; however, students may use manipulative materials to assist them in solving the math problems. There is a state list of suggested manipulative materials that might be used during the assessment, which is typical of those items likely used by students as part of their instructional program. A new form of both tests is available each year.

Title of Assessment	Organization	Phone
Mathematics Regents Competency Test -- NYSTP	New York State Education Department	(518) 474-5900

Ms. Mary Corrado
Coordinator of Test Development Activities
Room 760-EBA
Albany , NY 12234

Publication Date:

Description: This statewide math competency test is based on the state syllabus, General High School Mathematics, which outlines those math understandings students should know by the end of grade 9. The test consists of 60 items: 20 completion items for which students are to construct an answer and 40 multiple-choice items. If students pass this test, or a more advanced Regents math exam, plus earn at least two credits of senior high school math, they will have met the state math requirement. A new form of the test is available three times per year.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Mathematics -- Standard Grade	Scottish Examination Board	(031) 663-6601

Mr. K. Hutchon
Examination Officer
Ironmills Rd, Dalkeith, Midlothian
Edinburgh , Scotland EH22 1LE

Publication Date:

Description: The Scottish Examination Board prepares end-of-course tests for a variety of high school subjects to certify level of student competence. The course syllabus for Mathematics calls for coverage of number, money, measurement, geometry, trigonometry, algebra, and graphs/tables. The goals of the course are: knowledge/understanding, reasoning/applications, and investigating. There are two main parts of the assessment in Math--written tests (developed by the Examination Board) and performance assessments (conducted by teachers according to specifications developed by the Examination Board). The two parts are combined to grade (rate) student competence on a scale of 1-7 (1 being high), both overall and for each goal.

On-demand written tests, developed each year, cover knowledge/understanding and reasoning/applications. Three levels of the test are available: Foundation, General, and Credit. Depending on the percent correct score, students can obtain Grades of 1 or 2 on the Credit level, 3 or 4 on the General level, and 5 or 6 on the Foundation level. All questions are short answer or multiple-choice and are scored for degree of correctness of the answer.

The hands-on performance assessments must cover a range of activities including: the identification and use of real data; the use of measuring or drawing instruments; the recognition or exploration of a pattern, conjecture, or proof; and the formulation of a mathematical model. Candidates write up their investigations in the form of a report. Performances are scored on "understanding and organizing the task," "carrying out the task," and "communication." A total of 12 marks (points) is available. General criteria for level designation are provided as well as the point conversions described above.

The package of materials we received included the course syllabus, specifications for the written and performance assessments, and copies of the written tests for 1993. It did not include technical information nor sample student responses. (182 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Measuring Up -- Prototypes for Mathematics Assessment	National Academy of Sciences	(800) 624- 6242

Dr. Frank Press
Chairman, National Research Council
2101 Constitution Ave., NW
Washington , DC 20418

Publication Date: 1993

Description: "Measuring Up" is designed to illustrate performance assessment tasks that could be used with fourth graders to support reform efforts in mathematics instruction. The book presents 13 prototype assessments which are meant to be examples of assessment possibilities, not examples of ready-to-use assessments that provide an adequate sampling of the NCTM standards.

Each task description contains the following information: time allotment, student grouping, assumed background knowledge of students, task description, student materials, rationale/explanation, and protorubric. The 13 assessments have the following features: (1) they are projects taking 1-3 class periods; (2) some require collaboration and group work (3) most require student explanations; (4) they present a series of questions related to a general activity; (5) most have a single correct or best response, although a few are more open-ended; and (6) some have Spanish translations.

Scoring is based on "protorubrics," beginning scoring guides that are not yet fully fleshed out. All are task-specific and use a three point scale--high, medium, or low response. Abstracting across protorubrics, the following types of things are included in the "high" category: correctness of response, evidence of conceptual understanding, flexibility of thinking, clarity of presenting results, and problem solving. (However, the protorubrics do not themselves identify their own content in this manner, nor do all include everything on this list.) The protorubrics are not, in themselves, sufficient to interpret results; the "rationale" section for each assessment is also necessary.

Tasks were pilot-tested to ensure that they work as intended. No other technical information is available. Many samples of student responses are included. (174 pp)

Middle High School Pre-Post Survey	Access 2000	(708) 491-4979

Ms. Constance Williams
Evaluation Coordinator
617 Dartmouth Place - Northwestern University
Evanston , IL 60208

Publication Date: 3/10/93

Description: This survey, for students in grades 6-12, is used to assess the math/science attitudes of Access 2000 participants (mostly Black and Hispanic elementary students) enrolled in a math/science engineering enrichment program. It is used as a pre-post evaluation. Data & statistics are available. Restricted availability for research purposes.

Title of Assessment	Organization	Phone
Minnesota Mathematics State Assessment	Minnesota Department of Education	(612) 297-7317

Dr. Zhining Qin
Assessment Specialist
634-A Capitol Square Building, 550 Cedar St.
St. Paul , MN 55101

Publication Date: April, 1993

Description: The Minnesota Mathematics State Assessment has both open-ended questions and multiple-choice questions for grades 5, 8 and 11 designed to assess skills such as: problem solving, communication in math, applying math to real-life problems, explaining thinking, and estimation. The purpose of the assessment is to provide information to make a judgment about the effectiveness of the mathematics program at both the local and state level.

We have sample open-ended materials from the 1992 and 1993 assessments. At each grade level students are asked a series of questions which require them to solve a problem, draw a picture, explain their thinking, write a problem, etc. Scoring is task specific. Sample student work is included.

Substantial technical studies have been conducted including validity studies, rater agreement studies and accompanying data and inferential and descriptive statistics. Materials are publicly available at cost.

Title of Assessment	Organization	Phone
MOVE IT Math Concepts 1	University of Houston-Victoria	(512) 576-3151; FAX (512) 572-8463

Dr. Paul Shoecraft
Professor
2506 E. Red River
Victoria , TX 77901

Publication Date:

Description: The MOVE IT Math Concepts 1 and MOVE IT Math Levels of Use Questionnaire together form a two-pronged assessment strategy to promote the implementation of Level 1 of the MOVE IT Math program, developed by Dr. Paul and Lynne Shoecraft. MOVE IT Math is a K-6, university-supported, professional development program that advocates mathematics instruction based on the use of manipulatives to address a wide variety of learning styles (e.g., visual, auditory, kinesthetic). It consists of three 30-hour inservices. (Level 1 is one of the three.)

The Math Concepts 1 assessment instrument is a paper-and-pencil test consisting of addition and subtraction problems testing the MOVE IT Math concepts of (1) equals as balanced, (2) exchanging "up" in base ten, (3) being an exchanging expert, and (4) exchanging "down" in base ten. A measurement item involving adding feet and inches is included to assess ability to take into account the context in which numbers appear.

Copies of the Concepts 1 test, rubrics, and test results from six years of use are available from SEDL (see the LNP contact list). They may be used as is or modified, with appropriate citation to the authors. Review copies available for educators. (14 pages).

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Multimedia-Based Assessment Sampler of Science Process Skills	Midwestern State University Assessment Consortium	(803) 656-1863; FAX (803) 656-1864

Dr. Tom Peters
Director, AOP HUB, SC State Systemic Initiative
Sears House
Clemson , SC 29634-1902

Publication Date: unpublished

Description: The authors are in the process of developing several multimedia-based instruments to assess science process skills. The premise is that classroom-level assessment should be inseparable from, and integrated into, ongoing instruction.

Only one task has been piloted to date -- Fox Rot. In this task, students observe five photos of a fox decomposing, place them in chronological order, and explain reasons for their ordering. They may then view a short movie sequence as a form of self-evaluation. A second task under development, "Are You Listening?," is an interactive program designed to convey and assess the concepts of pitch and intensity.

These items are still in the developmental stage. When completed and pilot tested, permission will be granted by the authors to make copies of the tasks for research and use in the field. Overview handouts from a conference presentation (NSTA, 1993) are available from the developers or from SEDL (see LNP contact list). (16 pages)

The "Multimedia-Based Assessment Sampler" includes portions of the most recent field test versions of "Fox Rot" and "Are You Listening?" along with other tasks under development. The "Sampler" is formatted for Macintosh computers only (4MB RAM, a hard drive, and a color monitor are recommended; Quick Time and Hyper Card 2.1 software are required). To receive the sampler, send a 3.5" high density disk and $2.00 for postage to the authors.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
NAEP: Math Assessment	Educational Testing Service [under contract to National Center for Education Statistics]	(609) 734-1427

Dr. Paul Williams
Deputy Director, CAEP
P.O. Box 6710
Princeton , NJ 08541-6710

Publication Date: 1992

Description: The National Assessment of Educational Progress (NAEP) is congressionally mandated. Tests are given in reading, writing, math, science, social studies, fine arts, writing, literature, career development, and computers to students in grades 4, 8, and 12 on a revolving basis--not all subject areas are given each year. This entry describes the 1992 math assessment which tested approximately 220,000 students from 9000 schools. Information comes from: (1) "NAEP 1992 mathematics Report Card for the Nation and the States" (375 pp); and (2) a special issue of Journal of Educational Measurement on NAEP--Vol. 29, Summer 1992.

The on-demand tests covered numbers/operations, measurement, geometry, data analysis/statistics/probability, algebra/functions, and estimation. These content areas were covered at three levels: conceptual understanding, procedural knowledge, and problem solving. Some questions were multi-step. Calculators were allowed. There were both multiple-choice and short answer (e.g., measure an angle and write in the measurement) questions. Some of the questions required short explanations. For example, one fourth grade question asked students to choose the graph that represented the number of pockets in the clothing worn by a class of 20 students and provide an explanation of why they picked the graph they did. Responses were scored right/wrong.

The 1992 math assessment marks a shift to reporting by proficiency levels. For example, the "Basic" level designates conceptual and procedural understanding, while the "Advanced" level represents the ability to generalize and synthesize concepts and principles. (Note: The setting of cut-off scores on the tests relative to these levels has been controversial from a technical standpoint and will undergo further refinement.)

The report listed above contains NAEP background information, information on the achievement levels and how they were set, sample items illustrating the levels, and lots of tables of results by states, regional, and various demographics such as gender and ethnicity. The issue of JEM also has background information and sample items. Released sets of items are available in other documents.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
NAEP: Science Assessment	Educational Testing Service [under contract to the National Center for Education Statistics]	(609) 734-1427

Dr. Paul Williams
Deputy Director, CAEP
P.O. Box 6710
Princeton , NJ 08541-6710

Publication Date: 1987-1994

Description: The National Assessment of Educational Progress (NAEP) is congressionally mandated. Tests are given in reading, writing, math, science, social studies, fine arts, writing, literature, career development, and computers to students in grades 4, 8, and 12 on a revolving basis-not all subject areas are given each year. The information from this review comes from two sources: (1) "Learning by Doing," ETS Report #17-HOS-80, May 1987; and (2) sample grade 4, 8, and 12 items under development for the next science assessment, supplied by ETS.

The 1986 items represented a pilot-test to determine the feasibility of using open-response formats on future assessments. Tasks were administered in three formats: paper and pencil, stations, and individual observation. Tasks represented four levels of skills. The first level required students to classify and sort by identifying common characteristics of plants and animals. The second level required students to observe, infer, and formulate hypotheses using equipment. The third level asked students to detect patterns in data and interpret results. At the final level students designed and conducted complete experiments. Students supplied both short answers and more extended responses. "Learning by Doing" contains brief descriptions of the tasks and sample student responses. Information about scoring is sketchy. (32 pp)

Open-response items on the next assessment will have two formats: (1) paper and pencil (all information and responses are written; and (2) hands-on (e.g., using laboratory equipment). Some questions have more than one right answer. Scoring is task-specific. It appears that these repeat the formats reported on in the 1987 publication. The sample items upon which this review is based are not yet available for use outside NAEP.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
New Mexico High School Competency Examination	New Mexico State Department of Education	(505) 827-6524

Dr. Bud Hall
Director of Assessment, Evaluation & Information Services
Education Building
Santa Fe , NM 87501-2786

Publication Date: 1986

Description: All students in the state of New Mexico beginning at the tenth grade are required to take the High School Competency Examination, which consists of six sub-tests, five of which are predominately multiple choice. The sixth is an essay with a secure prompt revealed at test time. For students unable to respond to the essay prompt, the state will be piloting a portfolio assessment option to supplement the Competency Examination. Also, during the 1993-94 academic year, the New Mexico State Department of Education piloted the replacement of a portion of the multiple-choice questions on the five non-essay subtests with opened-ended questions. If successful, future versions of the exam will contain a mix of multiple-choice and open-ended questions.

If students are unable to pass one or more of the subtests on the High School Competency Examination, districts have the option of designing alternative assessments for individuals, which must then be approved by the state.

Title of Assessment	Organization	Phone
New Mexico Portfolio Writing Assessment	New Mexico State Department of Education	(505) 827-6524, FAX (505) 827-6696

Ms. Pat Rael
Assistant Director of Assessment and Evaluation
State Department of Education, Education Building
Santa Fe , NM 87501-2786

Publication Date:

Description: New Mexico Portfolio Assessment was developed as an alternative to Direct Writing Assessment (which resulted from the Education Reform Act of 1986). While the purpose of portfolio assessment is to assess student writing quality rather than science or math skills and/or knowledge, the prompts (questions to stimulate creative thought processes) often deal with science areas. At grades 4 and 6, prompts are offered for Narrative, Expository, and Descriptive writing samples. At grade 8, the Descriptive prompt is dropped and a Persuasive prompt is added. It is the Persuasive prompt that often deals with science topics.

Grade level booklets (4, 6, and 8) are available from Measurement Incorporated and ERIC. The Teacher's Guide is 132 pages in length. Included are materials lists, procedures, step-by-step guidelines, descriptions of rubrics and holistic scoring, student checklists, and scoring guides with samples of student responses for each type of writing.

Supplementary brochures are available from the same source. The "New Mexico Portfolio Writing Assessment Supplement" addresses the writing process, practice prompts, ideas for encouraging student writing, and recommendations for portfolio expansion. Review copies are available for educators.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
New Standards Project Math Performance Task Assessment	National Center on Education & the Economy	(202) 783-3668 or (412) 624-7961

Mr. Andy Platter
Communications Director
700 11th St., NW, Suite 750
Washington , DC 20001

Publication Date:

Description: The information for this review comes from several 1993 documents from the New Standards Project. "I Think. The Reason I Choose." "The New Standard" (newsletter), memo to Public, Press, Policymakers, Parents from Andy Platter re Performance 'Task' for public release. The goal of the NSP is to achieve a world-class standard of performance for all students. Math and English language tasks are now being piloted; science tasks are under development. Tasks emphasize the ability to think well, to demonstrate a real understanding of subjects studied and to apply what one knows to the kind of complex problems encountered in life. The final assessment will include portfolios, exhibitions, projects and the use of real-life tasks. In 1993, 70 tasks were piloted by nearly 50,000 4th and 8th graders. Student responses were scored by teachers from the sites at local scoring sessions using a holistic, general rubric. The project found that these teachers were able to score papers reliably and consistently.

New York State Elementary Science Program Evaluation Test-I (ESPET) -- Manipulative Skills Test	New York State Education Department	(716) 645-3171

Dr. Rodney Doran
Professor of Science Education
School of Education, 593 Baldy Hall, University at Buffalo
Buffalo , NY 14260

Publication Date: 1989

Description: The New York Elementary Science Program Evaluation Test-I (ESPET) has two required and five optional components administered at fourth grade. The required components are an objective test of 45 items and a manipulatives skills test having 5 stations with a total of 15 exercises. The manipulative skills test is the component reported on here. It is designed to assess the science inquiry and communication skills learned in grades K-4: (1) measure basic physical properties of objects, (2) predict an event, (3) create a simple classification system, (4) test objects and make a generalization, and (5) make an inference. Actual exercises involve measuring various objects and quantities, looking at water on various objects, grouping peas and beans, making an electrical circuit, and identifying objects in a mystery box. Students have five minutes to work on each task. The tasks and related scoring criteria are available. The state will be finished with some tasks in a few years. At that time, the tasks will be available to the public.

The goal of the assessment is to provide information to help local educators improve their elementary science program and to help the state identify those programs in need of technical-assistance. All scoring is done locally. The optional components of the test are four surveys (students, teachers, administrators and parents) that measure respondents' views of the instructional environment, and a student attitude survey.

Information for this review came from two documents: "Performance Assessment: What It Is and What It Looks Like" (Ruth Mitchell), and "New York State Elementary Science Program Evaluation Test, 1989" (New York Department of Education). (13 pp).

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
NIM Game Projects	Southeast EQUALS	(704) 692-4078

Ms. Sherron Pfeiffer
Coodinator of Public Programs
14 Thornapple Dr.
Hendersonville , NC 28739

Publication Date: 1992

Description: The assessment described in this document is a math project task appropriate for upper elementary and middle school students. Two project tasks are included, one individual and one group. The projects require students to create a game that requires application of math skills. These extended projects are used after students have had many opportunities to work with different kinds of NIM games. The extended nature of the project emphasizes persistence and the importance of quality products. Projects become part of a portfolio that shows growth over time.

The projects are scored using criteria specific to these tasks. The criteria revolve around the quality of the game and its usefulness in teaching the math skills specified. The project instructions and scoring guide are included. No sample student work nor technical information is included. This exercise is part of a book of teaching strategies produced by and available from the author: "Successful Teaching Strategies" and/or "NIM: A Worthwhile Problematic Task." (40 pp)

Title of Assessment	Organization	Phone
Ninth Grade Lab Skills	Hunter College, Department of Curriculum & Teaching	(212) 772-4000 x4287

Dr. Ira Kanis
Associate Professor
695 Park Ave.
New York , NY 10021

Publication Date: 1991

Description: The information for this review came from an article entitled "Ninth Grade Lab Skills," The Science Teacher, January 1991, pp. 29-33. The paper summarizes the six on-demand, hands-on, performance tasks given to ninth graders as part of the 1985-86 Second International Science Study to assess laboratory skills. A brief description, a picture of the lab layout, and a brief list of scoring dimensions is provided for each task. It appears that scoring was essentially right/wrong. Student tasks required students to manipulate material, collect information, and interpret results.

A brief discussion of some results of the assessment are included. There is enough information to try out the tasks, but not enough to use the performance criteria. No sample student performances are included.

The paper also discusses problems with many current lab activities (too cookbook) and how to redesign lab exercises to promote higher-order thinking skills.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
North Carolina Scope, Sequence, and Coordination of Science Middle School Project	East Carolina University	(919) 757-6586

Dr. Helen Parke **Publication Date:** 6/94
Curriculum Director, SS&C
East Carolina University
311 Flanagan
Greenville , NC 27858

Description: Middle school science teachers involved in this science curriculum reform (Scope, Sequence, and Coordination) are in the process of developing performance assessments related to unit objectives. An "assessment package" for a particular unit might include a performance test, a paper and pencil test, a writing assignment, a project, and a journal. Each of the components are described in the assessment package. A sample assessment package is available. Comments are appreciated as the packages have not yet been piloted by the teachers. Teachers will pilot and revise them in 1994-95.

Open-ended Science Problems for the Classroom	Center for Research in Mathematics and Science Education	(919) 515-6919

Dr. Sarah Berenson **Publication Date:** 1994
Director, Center for Research in Mathematics and Science Education
NCSU, College of Education & Psychology, 315 Poe Hall
Raleigh , NC 27695-7801

Description: An article in the 'Science Educator' (Spring, 1994, vol. 3), by Sarah Berenson and Glenda Carter, describes how to develop open-ended questions in science. The template was developed through work with grade 3-8 math and science teachers in Granville, NC. The approach was designed to help teachers develop assessments for the classroom. The article provides examples of open-ended items that ask students to write stories, to offer opinions, to write descriptions, and to teach science concepts to others. No rubrics are provided. However, the article discusses how teachers might develop expertise in developing rubrics for these open-ended items. (4 pp)

Title of Assessment	Organization	Phone
Options for Scoring Performance Assessment Tasks	Educational Testing Service	(800) 223-0267

Dr. Roy Hardy
Director, ETS-Atlanta
1979 Lakeside Parkway, Suite 400
Tucker , GA 30084-5865

Publication Date: 1992

Description: Four assessment tasks were developed to explore the feasibility of performance assessment as part of a statewide assessment program. Tasks were: shades of color (grades 1-2), discovering shadows (grades 3-4), identifying minerals (grades 5-6), and designing a carton (grades 7-8). The tasks are described in the paper, but all relevant materials are not included. Each task was designed to take one hour. Most tasks are completed individually, but one (cartons) is done is a group.

Response modes were varied (multiple-choice, figural, short narratives, products) in part to see which are feasible, and in part to see how different kinds of scores relate to each other. Most scoring was right/wrong or holistic on degrees of "correctness" of answer. Cartons was scored holistically on problem solving. The scoring procedures are described but not presented in detail. The paper also describes the process used to develop scoring rubrics, to train scorers at the state level, and to analyze the data. No sample student responses are included in this document, but were used in training.

The tasks were completed by 1128 students in 66 classes in 10 school districts. Teachers completed a survey (questions are included in the paper). Results showed that it took from 1/2 to three minutes to score the performances, interrater agreement ranged from .76 to the high .90's, relationships between scoring procedures varied, and teachers liked the procedures. In all, the author concluded that it is feasible to use performance tasks in statewide assessment. (25 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Orange County LEP Assessment Task Force	Orange County Office of Education	(714) 966-4423

Mrs. Barbara Allen
Coordinator
200 Kalmus Drive
Costa Mesa , CA 92626

Publication Date: Fall 1993

Description: This Orange County Task Force of educators has developed, designed, and field tested 19 performance assessments specifically designed for LEP students in grades 2 through 12. The results are intended to be reported as a whole portfolio and to provide a realistic picture of what LEP students can do in English and what growth in English, as well as other content areas, has occurred. The task force identified four outcomes, with observable indicators for each outcome, appropriate for LEP students to achieve as they exit the various LEP instructional programs. Outcome #2 ("students will develop life skills including problem solving, critical thinking, decision making, and goal setting") may incorporate tasks most easily connected to mathematics and science. Several tasks measure group performance and growth in cooperative learning. Both pretest and posttest scores will be recorded and compared to other indicators of achievement (e.g., CTBS scores, attendance data, grades, other testing).

Available for review purposes only are the Assessment Tasks booklet (58 pages) which contains various scoring sheets and rubrics along with the tasks, and the Teachers Handbook (21 pages) describing administration of the tasks. A sample packet is also available (29 pages). An assessment "package" is being designed that includes a reasonable way of managing administration of tasks, a meaningful way of reporting the test results in terms of growth in English, and that recognizes and allows for staff development as an integral piece of the system.

Title of Assessment	Organization	Phone
Oregon Open-Ended Math Assessment	Oregon Department of Education	(503) 378-8004

Ms. Barbara Wolfe
Director, State Assessment
Public Service Building, 255 Capitol Street NE
Salem , OR 97310-0203

Publication Date: 1993

Description: The Oregon Department of Education began giving on-demand open-ended math problems to a sample of students in grades 3, 5, 8, and 11 in 1992. The five short, written problems (both open-response and open-ended) used in each grade in 1992 are included in this document, as are student instructions.

Extended responses are scored on four dimensions, or traits: (1) Conceptual understanding of the problem -- The ability to interpret the problem and select appropriate information to apply a strategy for solution; (2) Procedural knowledge -- The ability to demonstrate appropriate use of math; (3) Problem solving skills and strategies -- The ability to use an efficient combination & series of skills to solve the problem; (4) Communication -- The ability to use math symbols well and ability to explain the problem solution. Each trait is scored on a scale of 1-5. The scoring guides are included in this document along with one sample completed student problem. No anchor papers or technical information is included. (9 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Packets Program	Educational Testing Service/D.C. Heath & Co.	(800) 545-2302

Dr. Nancy Katims
Project Director
P.O. Box 6890
Princeton , NJ 08543-5031

Publication Date: 1995

Description: Information for this description is from the "Teacher's Program Guide" for the Packets program from ETS distributed by D.C. Heath. The Packets Program is available for 3 middle school levels. Each level has a math-rich "newspaper" article and 8 Activity Units. Each Activity Unit contains 3 parts: a Warm-up, a Focus Project and Closure. Every Focus-Project poses a real-life problem. Students work on them in groups and each group prepares a written solution and presents it orally to the class.

Criteria for evaluating student work, descriptions of different mathematical approaches, a range of sample student products and suggested observation strategies are included with the assessment tool. Scoring rubrics are based on a 5-point scale: noteworthy, acceptable, needs minor revision, needs major revision and needs redirection. Three additional components provide strength to the program: a Staff Development Guide, a video for seeing the program in action, and a Spanish version.

Paired Interviews	Center for Children and Technology	(212) 807-4200

Dr. Dorothy Bennett
EDC, 96 Morton St.
New York , NY 10014

Publication Date: 1994

Description:

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Performance Assessment in Science	Graduate School of Education, University at Buffalo	(716) 645-3171

Dr. Rodney Doran
Professor of Science Education
Graduate School of Education, 593 Baldy HallUniversity at Buffalo
Buffalo , NY 14260

Publication Date: 1991

Description: This document consists of four manuals (Science Laboratory Test in: Biology, Chemistry, Physics, and General Science), a research report ("Alternative Assessment of High School Laboratory Skills"), and an overview presentation ("Assessment of Laboratory Skills in High School Science"). These describe a series of on-demand activities to assess high school student laboratory skills in science, and a study examining test reliability, inter-rater agreement, and correlations between different parts of the tests.

Six hands-on tasks are presented in each content area manual (biology, chemistry, physics). Each task has two parts. In Part A, students are given a problem to solve and are directed to state an appropriate hypothesis, develop a procedure for gathering relevant observations or data and propose a method for organizing the information collected. After 30 minutes their plans are collected. Plans are scored for statement of hypothesis, procedure for investigation, and plan for recording and organizing observations/data. In Part B, students are given a predeveloped plan to collect information on the same questions as in Part A. They have 50 minutes to carry out the plan and compose a written conclusion. Performance on Part B is scored for quality of the observations/data, graph, calculations, and conclusion. This procedure ensures that success on Part B is not dependent on Part A. Scoring is designed to be generic: the same criteria are used across tasks. Individual tasks also have specific additional criteria.

The General Science test has six 10-minute tasks set up in stations. Students answer specific questions that are classified as planning, performing, or reasoning. Scoring is not generalized; points are awarded for specific answers.

All manuals include complete instructions for administering and scoring the tests. A few sample student responses are provided. Results from a study done with 32 high schools in Ohio showed that rater agreement was good, it was a very time-consuming process, and teacher reactions varied widely. Manuals must be purchased from the developer. (500 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Performance Assessment In Science -- STS Connections	Alberta Education	(403) 427-0010

Mr. Greg Hall
Acting Program Manager, Achievement Testing
Box 43, 11160 Jasper Ave.
Edmonton , AB T5K 0L2

Publication Date: 1993

Description: The information for this review came from several documents: "Grade 9 Science Performance-Based Assessment, 1993"; "Grade 6 Science Field Test Instruction Booklet, 1992"; and "Grade 6 Science Field Test Student Booklet, 1992". The Grade 9 on-demand assessment consists of six stations set up in a circuit at which students perform a variety of hands-on investigations. The six in the 1993 assessment include: seed dispersal, calibrating a hydrometer and using it to measure the density of a sugar solution, determining which of several choices is the best insulator, building a robot arm, testing for contaminates, and examining an environmental issue. Three circuits, accommodating a total of 15 students, is recommended. Each group requires two hours. Students respond in writing to a series of questions. (The Grade 6 pilot field-tested 10 activities.)

Responses for the Grade 9 assessment were scored on two dimensions: problem solving/inquiry skills and communication. The scoring guide is generalized (the same one is used across all tasks) and uses a four-point (0-3) scale. A "3" for Inquiry is: "Analyzed and readily understood the task, developed an efficient and workable strategy, strategy implemented effectively, strategy supports a qualified solution, and appropriate application of critical knowledge." A "3" for Communication is: "Appropriate, organized, and effective system for display of information or data; display of information or data is precise, accurate, and complete; and interpretations and explanations logical and communicated effectively."

The documents we have contain: a general overview of the procedures, complete activity descriptions, an administration script and the scoring guide. Student booklets for the 9th grade assessment, technical information and sample student responses are not included. (80 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Performance Assessment -- Math	Holt Public Schools	(517) 694-2162

Mr. Michael Lehman
Teacher
1784 Aurelius Road
Holt , MI 48842

Publication Date: 1993

Description: This entry is based on materials sent by the contact person and on: "Panel Assessments: Unlocking Math Exams," Educational Leadership, February 1994, pp. 69-70; "Assessing Assessment: Investigating a Mathematics Performance Assessment," National Center on Teacher Learning, 1992. Teachers at Holt High School have developed an on-demand assessment approach that emphasizes problem solving and group work. Students are given six problems (some having only one right answer and some having more than one right answer) to solve as a team (three to four students per team). The team then spends 90 minutes with a panel of three judges recruited from teachers, the business community, Michigan State University, the school board, parents, and district administrators. (Having lay persons on the panel allows judgments of student clarity of explanation.) Judges can ask any student to explain the team's solution and problem-solving strategy on any of the six problems. (Therefore, all students must have knowledge of all six problems.) After all students have explained one problem, the judges assign the team a new problem to work on while they watch.

Student responses are scored on: making sense of the problem, solution strategies, accuracy of results, ability to communicate results, ability to answer questions posed by the judges, three judgments of group process skills, and an overall judgment of student understanding.

A complete set of 10 tasks (six preassigned and four on-the-spot) are included for Algebra II. The scoring guide and a few sample precalculus projects are also included. No technical information or sample student performances are included. (52 pp)

Title of Assessment	Organization	Phone
Performance Assessment Workshops in Mathematics and Science	University of Central Florida	(407) 823-5788

Dr. Robert Everett
Assistant Professor
College of Education
Orlando , FL 32816

Publication Date: June 1994

Description: Dr. Robert Everett has developed training materials for K-8 teachers on using performance assessments in math and science. Sample math and science open-ended assessments from the workshop are available (11 pages). Process skills are emphasized through a generic rubric that can be used with a variety of problem-solving tasks. Sample tasks include conducting an experiment with paper towels, organizing data from a table, and writing explanations of math applications. Samples given are from a workshop notebook on alternative assessment. The notebook (100 pages) will be available in fall 1994 from the author.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Performance Assessments for the ITBS, TAP, and ITED	Riverside Publishing Company	(800) 323-9540

Dr. Susan Holmes
Editorial Director, Educational Publications
8420 Bryn Mawr Ave.
Chicago , IL 60631

Publication Date: 1993

Description: The "Performance Assessments" for ITBS, TAP, and ITED" cover mathematics, social studies, science, and language arts in 9 levels for grades 1-12. These on-demand performance assessments supplement the achievement tests from the publisher (ITBS, TAP and ITED).

Each assessment uses a scenario to generate a series of related questions, some of which have only one right answer, and others of which are more open-ended and generative. For example, the science assessments we received center around designing a biology display for a local museum (high school) and exploring the web of life (elementary). The biology assessment has students design and use classification systems for living things, draw a bar graph based on presented information, generalize about muscles, and show knowledge about the brain. Tests take 1 1/2 to 2 hours depending on grade level.

No information about scoring, sample student performances, nor technical information was included in the materials we received. However, the publisher's catalog indicates that scoring materials are available and that the tests are normed.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Performance Assessments in Biology	Israel Science Teaching Center Hebrew University	972 2 661 774

Dr. Pinchas Tamir
Professor of Science Education
Hebrew University Israel Science Teaching Center
Jerusalem , 91904 Israel

Publication Date: 1972-1992

Description: This set of 50 labs (approximately 250 pages) from the "Practical Laboratory Problem Solving Tests Assessing Process/Inquiry Skills in High School Biology" for Israeli high school biology/zoology classrooms (rather advanced if they were to be used in the U.S.) has been developed over the last 25 years. (More than 100 labs exist in Hebrew.) The labs assume a fair amount of background knowledge, and students are expected to demonstrate a high degree of ability in inferring, analyzing, and synthesizing. Some of the experiments require students to make evaluations. Scientific processes and problem identification play a prominent part in most of the tasks as well. Almost all of them ask students to develop experiments which they may or may not carry out depending on time constraints. Information is conveyed to students primarily in writing, and they in turn are expected to demonstrate their learning in writing as well. The students give short answers and, in many cases, much longer responses, such as the descriptions of labs they develop on their own. The tasks seem to be assessing product, method, and process skills, as well as dispositions or habits of the mind.

Copies of various readings and articles, including the "Inquiry Performance Tests Assessment Inventory," are available for review purposes (approximately 50 pages). Relevant journal articles include: "The Israeli 'Bagrut' Examination in Biology Revisited," Journal of Research in Science Teaching, Vol. 22, pp. 31-40, 1985; "Science Notes," Australian Science Teachers Journal, Vol. 30, pp. 43-52, 1984; "The Lower Level Biology Matriculation (Bagrup) Examination in Israel," International Journal of Science Education, Vol. 13, pp. 271-282, 1991; and "Characteristics of Laboratory Exercises Included in Science Textbooks in Catalonia (Spain)," International Journal of Science Education, Vol. 14, pp. 381-392, 1992.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Performance Assessments in Science and Mathematics	Aurora Public Schools	(303) 340-0861

Ms. Sandra Schnitzer
Strategic Plan Facilitator
15751 E. 1st Ave.
Aurora , CO 80011

Publication Date: 1994

Description: The author has provided three examples of the types of assessments being developed by teachers in Aurora Public Schools: developing an analogy for the major anatomical and physiological components of a typical eukaryotic cell, recommending a decision concerning the future use of a medical technology in human biology, and collecting and analyzing a data set. These examples, for secondary students, include a description of the task, prerequisite student experiences, and criteria for judging student performance on the task. Students work in groups of two to four. The assessments are mostly for classroom use.

Performances are evaluated along several dimensions including content, complex thinking, and collaborative working. Most of the rubrics are task specific and emphasize relative quality. For example, a "4" score for complex thinking on the medical technology task is: "The student clearly and completely identified the criteria by which the alternatives were assessed. The criteria were presented in detail and reflected an unusually thorough understanding and concern for the repercussions of the decision." The collaborative worker rubric is generic and more descriptive; a "4" is "The student expressed ideas clearly and effectively; listened actively to the ideas of others; made a consistent effort to ensure that ideas were clearly and commonly understood; accurately analyzed verbal and non-verbal communications; solicited and showed respect for the opinions of others."

No technical information nor sample student responses are included. (11 pp)

Title of Assessment	Organization	Phone
Performance Tasks in Science	Advanced Systems	(603) 749-9102

Mr. Stuart Kahl
P.O. Box 1217 171 Watson Road
Dover , NH 03820

Publication Date: 1990

Description: These science and math assessment tasks are designed for all students at grades 4, 8, and 12. The test materials are a series of performance tasks in written format and provide to an individual student, or groups of 2-4 students, the opportunity to demonstrate their math and science knowledge and higher-order thinking skills. Student responses are both short answer and extended response. Lab equipment and other support materials such as maps and pictures are used.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Performance-Based Assessment in Science	Texas Education Agency	(512) 463-9536

Ms. Barbara Green
Science Education Specialist
1701 North Congress Ave.
Austin , TX 78701

Publication Date: 1993

Description: The Texas Education Agency is field-testing performance tasks to assess grade 4 and 8 science process skills. Results are not part of the official state reporting, but are returned directly to districts. The two tasks we received require students to design an insulating container for ice cubes (grade 4) and determine the absorbency of paper towels (grade 8). These illustrate the two basic kinds of tasks--design and inquiry. Students plan and carry out their designs or inquiries at stations having a standard set of disposable and nondisposable materials. Students respond in writing (showing pictures, diagrams, and data displays when appropriate) to printed directions. For example, the grade 4 task asks students to plan the design (draw a picture and write a description), construct the design and test it, improve the design, and write a report (written analysis and conclusion).

Scoring uses a different holistic, four-point scale for each of the two types of tasks: designs and inquiries. For example, a "4" on design tasks means: "The overall response is consistent with a sound scientific approach to design. The response indicates that the student has a clear understanding of the problem. The response may, in some cases, define additional aspects of the problem or include extensions beyond the requirements of the task. Some inconsistencies may be present, but they are overwhelmed by the superior quality of the response. A score point "4" response is characterized by most of the following..."

The package of materials we received has descriptions of the two tasks, a sample student response for each (unscored), and the scoring rubric for each. No technical information is included for the sample tasks. The contact person has given permission for educators to reproduce for their own students the materials submitted. (32 pp)

Title of Assessment	Organization	Phone
Physics Regents Exam -- NYSTP	New York State Education Department	(518) 474-5900

Ms. Mary Corrado
Coordinator of Test Development Activities
Room 760-EBA
Albany , NY 12234

Publication Date:

Description: This statewide student physics assessment is based on a state syllabus, Regents Physics, which is used by each Regents physics teacher. The assessment is divided into 3 components: a locally developed laboratory program consisting of at least thirty 40-minute periods with successfully written laboratory reports on each lab experience (done throughout the school year); a state-developed "Physics Laboratory Skills Evaluation Form" performance test of 7 tasks requiring the use of equipment (done throughout the school year); and a paper/pencil test consisting of multiple-choice and free response items (up to 3 hrs. provided). A six-page "Reference Tables for Physics," used by students throughout the school year as part of instruction, is also used by students on the assessment. A new form of the paper/pencil component is available once each year.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Physics -- Standard Grade	Scottish Examination Board	(031) 663-6601

Mr. J.A. Gibbons
Examination Officer
Ironmills Rd., Dalkeith, Midlothian
Edinburgh , Scotland EH22 1LE

Publication Date:

Description: The Scottish Examination Board prepares end-of-course tests for a variety of high school subjects to certify level of student competence. We have not specifically received materials for the Physics assessment. This summary is based on tests we have received in other areas of science. Within the content specified by the syllabus for the course, student goals are: knowledge, problem solving, practical abilities (science process skills), and attitudes. (Only the first three are assessed.) There are two main parts to the assessment--on-demand written tests (developed by the Examination Board) and classroom embedded hands-on performance assessments (conducted by teachers according to specifications developed by the Examination Board). The two parts are combined to grade (rate) student competence on a scale of 1-7 (1 being high).

Written tests, developed each year, cover knowledge/understanding and problem solving in the content areas covered by the syllabus. Two levels of the test are available: General and Credit. Students getting about 50% right on the general level obtain a Grade 6; about 70% right gives a Grade 3. Likewise a score of about 50% on the Credit level gives a Grade 2; while 80% gives a Grade 1. All questions are short answer or multiple-choice and are scored for degree of correctness of the answer.

The hands-on performance assessments for Practical Abilities cover techniques (ability to perform certain specific tasks), and investigations. In assessing techniques, students score 1 mark (point) for successful demonstration. In investigative work, students are scored for "generative skills," "experimentation skills," "evaluation skills," and "recording and reporting skills." Scoring entails assigning marks (points) for various specified features of performance, such as 1 mark for "clearly identifying the purpose of the investigation in terms of the relevant variables." The scores for techniques and investigations are added together and cutoffs are applied to determine the final grade for Practical Abilities.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment **Organization** **Phone**

Planning for Classroom Portfolio Assessment Indiana University

Dr. Diana V. Lambdin
Professor of Mathematics
Indiana University
Bloomington , IN 47405

Publication Date: 1994

Description: The information for this entry came from: "Planning for Classroom Portfolio Assessment," Arithmetic Teacher, February 1994, pp. 318-324. The authors report on the development of a portfolio system for their secondary mathematics students. (This was part of a larger project for all grade 3-12 teachers).

The authors have students assemble a "permanent portfolio" from a "working portfolio." The working portfolio is a place to store all potential permanent portfolio entries. The Permanent portfolio is assembled from the working portfolio. All portfolios are stored in an easily accessible place in the classroom. The goals are to promote student self-assessment, improve communication with students and parents, and gain a broader picture of the student than available with traditional tests. The goal is not to assess student knowledge. The authors include task guidelines that are given to students.

In addition to student and peer evaluation of portfolio selections and the portfolio as a whole, the teacher has guidelines for grading. Grades are based on: diversity of selection, written reflections about selections, and portfolio organization. The authors present a little detail that flesh out these criteria.

The document includes some student work but no technical information. (7 pp)

Portfolio Assessment Anchorage School District (907) 269-2211

Dr. Tom Straugh
Research Associate
P.O. Box 196614
Anchorage , AK 99519-6614

Publication Date:

Description:

Portfolio Assessment System -- Mathematics CTB McGraw-Hill (408) 649-7728

Dr. John Stewart
Senior Product Manager
2500 Garden Rd.
Monterey , CA 93940

Publication Date:

Description:

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Portfolio Evaluation of Writing in English, Social Studies, Mathematics, Science, and Electives for 9th and 10th Graders	Capuchino High School	(415) 583-9977

Mr. Jim Coe
A.P./C&I
1501 Magnolia Blvd.
San Bruno , CA 94066

Publication Date: 1993

Description: This 9th and 10th grade portfolio assessment project is focused on writing in the content areas. For example, "Explain in writing how to solve a problem in mathematics" could be the prompt for students to use an IMP– (Interactive Mathematics Program) type problem as the stimulus for the writing response which could then be submitted as a portfolio entry. Ninth grade students supply writings in five categories: autobiographical experience, description/observation, controversial issue, expository essay, and solving a problem. For tenth grade students, the five categories are description/observation, expository writing, interpretation or evaluation, a process or sequence of steps, and a writer's choice. Portfolios are evaluated on 6-point scales based on the categories completion, form, content, personal voice, creativity, and conventions. Student portfolio entries are housed in a thin, 3-hole punched, notebook cover with tabs.

The developer has provided copies of the following documents, which are available through the LNP and may be photocopied (20 pages): "Portfolio Construction Process, Important Information for Your Portfolio Evaluator, Student Portfolio Evaluation Sheet, Student Portfolio Evaluation, Portfolio Evaluation Form, Summary of Comments for Writing Improvement, and Portfolio Return Procedures."

Title of Assessment	Organization	Phone
Portfolio Guidelines in Primary Math	Multnomah Educational Service District	(503) 255-1842

Dr. Leon Paulson
Assessment Consultant
PO Box 301039
Portland , OR 97220

Publication Date: 1994

Description: This document is a short handbook designed to give primary grade teachers some ideas on how to begin using portfolios in math for very young students. The primary use of the portfolio is as an instructional tool--students assemble their portfolios to tell a story about who they are mathematically. Student self-assessment is emphasized. There are sections on: ideas for types of things students can choose for their portfolios, help on how to encourage student self reflection, and practical help with topics such as storage, and how to set up student-led conferences. A sample portfolio for a second grade student is included.

Outside, formal scoring is not emphasized. However, the author discusses performance criteria that emphasize process skills as useful way to assist students to self-assess. (He illustrates this with an example from Vermont which has seven judgment categories for problem solving and communication skills.)

No technical information is included. (32 pp)

Title of Assessment	Organization	Phone
Portfolio Model	Chief Moses Junior High, Moses Lake School District	(509) 766-2661

Ms. Linda Thompson
Teacher
2215 Westshore Dr
Moses Lake , WA 98837

Publication Date: 1994

Description: The author is experimenting with the use of portfolios in her seventh grade math classes. Students are asked to include in their portfolio at least one entry for each of: mathematics as problem solving, mathematics as communication, mathematics as reasoning, mathematics connections, estimation, number sense and numeration, concepts of whole number operations, whole number computation, geometry and spatial sense, measurement, statistics/probability, fractions and decimals, patterns and functions. A single entry might serve to illustrate more than one skill. Thus, the portfolio is designed to align with the NCTM standards.

The packet of materials includes the direction sheets for students, two sample cover sheets that could be used for each portfolio entry, a self/peer rating sheet for group cooperation, a list of required content for a parent conference portfolio, and the student version of a scoring guide for individual portfolio entries. The latter scoring guide is holistic and uses a four point scale. "4" is: "This response provides proof that you really understand the mathematical concepts you are demonstrating. You have communicated your understanding so well there is no question that you have mastered the ideas being explored." Thus, students appear to be scored only on group cooperation, conceptual understanding, and communication; the packet contains no scoring guides for other areas such as problem solving, reasoning or connections.

The packet also does not include technical information nor sample student work. The author has given permission for educators to copy the materials for their own use. (7 pp)

Title of Assessment	Organization	Phone
Portfolio Project	Madison Metropolitan School District	(608) 267-4213

Ms. Joan Panepinto
School Psychologist
545 W. Dayton St.
Madison , WI 53703

Publication Date:

Description: The portfolio reported in this document provides a long term picture of a student's progress and unique strengths. It provides an opportunity to construct a picture that reflects what a child actually does in a learning environment. By reviewing a child's work collected over time, a reader of the Portfolio should be able to see how a child is progressing from a more holistic and authentic perspective. The primary audience for a child's Portfolio is the child and the teacher. The Portfolio is constructed by students in partnership with their teacher. The Portfolio can be used to review their progress in a specific area such as reading and writing. With inclusion of other tasks selected by the teacher and child, it is expected that individual interest and "themes" will emerge over time as indicators of the child's unique personality and growing view of his/her world. Portfolios are also useful tools for parent conferences.

No performance criteria are included.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Portfolios	Salt Lake City School District	(801) 328-7254

Dr. Robert DeVries
Supervisor, Department of Evaluation
440 E. 1st St.
Salt Lake City , UT 84111

Publication Date:

Description:

Title of Assessment	Organization	Phone
Portfolios in Science Classroom	Teacher Education	(513) 529-3991

Dr. Ann Haley-Oliphant
Visiting Assistant Professor
421 McGuffey Hall-Miami University
Oxford , OH 45056

Publication Date: 3/1/93 - current

Description: Miami University has developed standards for preservice and inservice teaching portfolios. The portfolios were developed to provide learners with the opportunity of showcasing "what they know and are able to do." Preservice and inservice teachers are given a set of portfolio content requirements and scoring criteria. The entries in the portfolio are intended to provide rich forms of evidence of the learner's knowledge and understanding of current trends in science education, e.g., inquiry, equity, cooperative learning, and problem solving.

The document we received includes the rationale for portfolios, guidelines on types of items to include, and a scoring guide. No sample portfolios or technical information is included. (9 pp)

Title of Assessment	Organization	Phone
Process Interviews	EDC Education Development Center - Center for Children and Technology	(212) 807-4200

Dr. Dorothy Bennett
EDC Education Development Center 96 Morton Street
New York , NY 10014

Publication Date:

Description: This assessment is given to all students who are in grade level 7-11. Some special student groups for whom it was designed are ethnic/minority, and others economically disadvantaged. The intent is to assess the students in areas of subject matter interest, work habits, curiosity, determination, group cooperation, tolerance, and responsibility in learning. The rating is done on an individual basis using staff development materials.

Title of Assessment	Organization	Phone
Process Skills Assessment Kits	Badger Road Elementary School	(907) 488-0134

Ms. Leslie Sears Gordon
Teacher and Extended Studies Program Coordinator
P.O. Box 71250
Fairbanks , AK 99707

Publication Date: 1993

Description: This project involves the development of kits for teachers in grades 1-5 to assess student science process skills. This review is based on a description of the project written by the contact person; we have not seen actual samples of kits. The kits were designed to be developmentally appropriate, hands-on, constructivist, articulated across grades, and articulated with schoolwide goals. The kits are self-contained. There is no information about the actual tasks in the kits or how performance is judged. There is also no sample student performances nor technical information. The kits are currently being pilot-tested. A manual should be available by December 1994.

Title of Assessment	Organization	Phone
Program Evaluation Test in Science -- NYSTP	New York State Education Department	(518) 474-5900

Ms. Mary Corrado
Coordinator of Test Development Activities
Room 760-EBA
Albany , NY 12234

Publication Date:

Description: This science assessment, administered at grade 4, covers outcomes for science K-4. It has two required and five optional components. The required components are an objective test of 45 items and a manipulative skills test having 5 stations with a total of 15 exercises. The manipulative skills test is designed to access science inquiry and communications skills: (1) measure basic physical properties of objects, (2) predict an event, (3) create a simple classification system, (4) test objects and make a generalization; and (5) make inferences.

Students have seven minutes to work on each task. The goal of the assessment is to provide information to help local educators improve their elementary science program and to help the state identify those programs in need of technical assistance. All scoring is done locally. The optional components of the test are five surveys used with students, teachers, administrators, and parents which measure respondent's views of the instructional environment, and student attitudes.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Project ABCD -- Alternative Blueprint for Curriculum Development	Texas Association for Supervision and Curriculum Development	(713) 286-3603; FAX 286-4142

Ms. Bonnie Walker
Director of Project ABCD
16811 El Camino Real, Suite 124
Houston , TX 77058

Publication Date:

Description: Texas teachers have written this activity-based curriculum for grades Pre K-12. Each objective for a given grade or course has an assessment to help determine if a student has understood and can apply the objective. There are also cluster assessments that cover several objectives at once. These assessments for the most part are nontraditional and require more than working problems and showing the answer. Many use calculators or manipulatives. Tasks range from individual to large group. Responses encompass the full range of written, oral, visual, and physical, structured, open-response, and open-ended. Scoring is self-, peer- or teacher-initiated, depending on the task. Scoring suggestions are offered with the assessments.

The curriculum and assessments are designed to meet the needs of all students, regardless of sex, ethnicity, economic status, or performance history. In regular use for 3 years, it is activity-based. Reports are teacher-generated.

The math and science curriculum packages can be purchased from the author for $7,500.00 each. A preview video and compact disc are available for 30 days for a rental fee of $50.00. The renter must sign an agreement not to copy the disc.

Project OMEGA (Optimum Math Expectations Generated by Assessment)	Governor's Grant (NJ)	(201) 670-2790

Ms. Joyce Snider
Project Director
George Washington Middle School, 155 Washington Place
Ridgewood , NJ 07451

Publication Date: in process

Description: The information in this review is from a description of the 1992 report, "The Governor's Grants for Excellence in Science and Mathematics." Teachers in the George Washington Middle School (grades 6-8) are working towards designing an alternative assessment system. Their four-item assessment instrument is administered at the beginning and end of the year and is designed to reveal the student's ability to generate information in open-ended, problem-solving situations. Items have multiple solutions, require explanations and demonstrate the use of non-routine resources or tools (e.g., Almanac, geometric models, calculators, etc.). Instruments are still under development. Rubrics award points using a six-point scale. There are no published documents, but informal material can be obtained from the school.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Provincial Learning Assessment Program (Math)	Ministry of Education Province of British Columbia	(604) 356-2451

Dr. J. Gaskill **Publication Date:**
Assistant Director Provincial Learning Assessment Program
617 Government Street
Victoria , Canada V8V 2M4

Description:

Title of Assessment	Organization	Phone
Provincial Learning Assessment Program (Science)	Ministry of Education Province of British Columbia	(604) 356-2451

Dr. J. Gaskill **Publication Date:**
Assistant Director, Provincial Learning Assessment Program
617 Government Street
Victoria , Canada V8V 2M4

Description:

Title of Assessment	Organization	Phone
QUASAR Cognitive Assessment Instrument (QCAI)	Ford Foundation	(412) 624-7791

Dr. Suzanne Lane
Associate Professor & QUASAR Student Assessment Coordinator
LRDC, Univ of Pittsburgh, 3939 O'Hare St.
Pittsburg , PA 15260

Publication Date: 1992

Description: The QCAI (QUASAR Cognitive Assessment Instrument) is designed to measure long-term growth of students in the area of math thinking and reasoning skills. Information for this review was taken from the following publications: "Principles For Designing Performance Assessments: An Example of Their Implementation" (Lane & Carol Parke, AERA, 1992, 28 pages); "Empirical Evidence for the Reliability and Validity of Performance Assessments" (Lane, Clement Stone, Robert Ankenmann & Mei Liu, AERA, 1992); "The Conceptual Framework for Development of a Mathematics Performance Assessment Instrument" (Lane, AERA, 1991); "Validity Evidence for Cognitive Complexity of Performance Assessments: An Analysis of Selected QUASAR Tasks" (Maria Magone, Jinfa Cai, Edward Silver, & Nign Wang, AERA 1992); and "Conceptual and Operational Aspects of Rating Student Responses to Performance Assessments" (Patricia Kenney & Huixing Tang, AERA, 1992).

Thirty-three tasks were designed for sixth and seventh graders. No single student receives more than nine tasks in any 45-minute sitting. The tasks were designed to provide a good sample of math thinking and reasoning skills by having a variety of representations, approaches and problem strategies. Specifically, students were asked to provide a justification for a selected answer or strategy (enhanced multiple-choice), explain or show how an answer was found, translate the problem into another representation (picture, equation), pose a mathematical question, interpret provided data, and extend a pattern and describe underlying regularities. The tasks were carefully field-tested for bias and extraneous interference (confusing or difficult instructions). General descriptions for all the tasks, and detail on a few of the tasks are provided in these materials.

Scoring is done via a generalized holistic 4-point rubric which directs raters to consider mathematical knowledge, strategic knowledge and communication. (Each of these dimensions is laid out very clearly and could be used as the basis of an analytical trait scoring scale.) The generalized rubric is then applied to each problem by specifying features of responses that would fall at different scale points. The generalized scoring guide is included in these materials, but not the task-specific adaptations.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Regents Three Year Sequence -- NYSTP	New York State Education Department	(518) 474-5900

Ms. Mary Corrado
Coordinator of Test Development Activities
Room 760-EBA
Albany , NY 12234

Publication Date:

Description: This statewide student math assessment is based on state syllabi, Sequential Mathematics Course I, II, III, which integrate the various topics of mathematics. A separate math test is provided for each of these three one-year courses. A given test for each of these courses is composed of a mix of items, some of which are multiple choice and others which are open response. Calculators must be made available to students for their use on this assessment. Some tests have reference materials available during the exam period which are similar to those used throughout the year as part of instruction. A new form of each test is available three times per year.

Regional Performance Based - Science Assessment	Tri- BOCES Regional Science Task Force	(315) 793-8589 or 793-8619

Ms. Patricia Zuck
Program Specialist
Instructional Program Planning & Development
Box 70; Middle Settlement Road

New Hartford , NY 13413

Publication Date:

Description: Our goal in developing the "Regional Performance-Based Science Assessment" for grades K-6 was not just to measure student performance, but to improve it. Every school needs specific skill exit standards at each grade level to make teachers aware of the expectations and goals they must reach, if their children are to be successful in science education. By setting standards, it would foster more accountability at each grade level rather than at one specific point in time, which was presently done at grade four by the NYS Science (ESPET) Test. By having quality control and agreeing on the same skill standards per classroom, we hoped to increase consistency for all the schools in our tri-county area. The areas for which testing activities were developed is based on the skill process areas listed in the NYS Elementary Science Syllabus.

The process skill areas for elementary science are, by grade: K= Observation, 1= Classification, 2= Measurement, 3= Gathering and Processing Data, 4= Making Predictions and Inferences, 5= Controlling Variables, and 6= Designing Experiments

We realized that national tests tended to use more multiple-choice questions, giving students a number of alternatives for solving problems, but did not demonstrate if a student could discover his/her own solution to problems. In the manipulative portion of the NY ESPET Test, students do activities to discover the answers to questions and this is what we tried to emulate in these testing activities. Bloom's Taxonomy was used as a guide to analyze learning experiences from the simplest level, which is knowledge, to the most sophisticated, which is evaluation.

Our exit outcome, by the end of grade six, is that each student would design an experiment of his/her own choosing, demonstrate it to someone else, and have another person in a different class replicate the experiment by reading over the student's notes.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Research Presentation	COOR ISD	(517) 275-5137 Ex. # 233

Ms. Jan Keith Farmer
Educational Consultant
11051 North Cut Road
Roscommon , MI 48653

Publication Date: 2/24/93

Description: The authors feel that authentic activities equal authentic assessment. The main goal in an authentic assessment is to construct an authentic activity--in this case, eighth grade students address a real world problem and then present conclusions to a real audience. Responses are written, oral and verbal are scored using a check-list of general features. The information is publicly available at no cost.

Title of Assessment	Organization	Phone
Rhode Island Portfolio Assessment Project	Rhode Island Department of Education	(401) 277-2040

Dr. Mary Ann Snider
Assessment Specialist
22 Hayes St. Rm 212
Providence , RI 02908

Publication Date:

Description: The Rhode Island Portfolio Assessment Project is a model for classroom-based assessment that heavily relies on the integration of instruction and evaluation. There are no performance tasks. Rather, teachers and students gather evidence of progress being made in learner outcomes and competencies. Draft outcomes and competencies have been developed in reading, writing and mathematics. The math outcomes are based on NCTM standards. There are shared benchmarks in reading and writing. To date, none have been developed for mathematics.

Title of Assessment	Organization	Phone
SAT Mathematics -- Student Produced Responses	Educational Testing Service	(609) 734-1478

Dr. James Braswell
Principal Measurement Specialist
Educational Testing Service
Princeton , NJ 08541

Publication Date: 1994

Description: The information for this review came from the author who completed a data-entry form, and from a paper entitled "Overview of Changes in the SAT Mathematics Test in 1994" (Braswell, ETS, NCME, 1991, 22 pages).

Currently, the on-demand SAT-Math consists of two parts: regular multiple-choice and quantitative comparison (solution A is larger than, smaller than, or equal to solution B, or cannot be determined). A third part called "student-produced responses" will be included on the PSAT in 1993 and the SAT in 1994. In this short-answer part, students will solve problems that have integer, fractional, or decimal solutions in the range 0 to 9999. A grid is provided for students to enter their actual answer. Some problems will have more than one right answer or can be any value in a range. For these problems, a correct response is recorded if the student answer is one of the accepted answers. Of the 55-60 items on the test, 10-15 will be in this format.

The materials include a couple of examples of this type of item.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Science Curriculum Profile	Curriculum Corporation	(03) 639-0699; FAX (03) 639-1616

Mr. David Francis
Executive Director
St. Nicholas Place, 141 Rathdowne St.
Carlton, Victoria , Australia 3053

Publication Date: 1994

Description: This review is based on two documents: "Science--a curriculum profile for Australian schools," and "Using the Science Profile," both 1994. These represent the science portion of a series of publications designed to reconfigure instruction and assessment in Australian schools. The project, begun in 1989, was a joint effort by the States, Territories and the Commonwealth of Australia initiated by the Australian Education Council.

The profiles are not performance assessments per se in which students are given predeveloped tasks. Rather, the emphasis has been on conceptualizing major student outcomes in each area and articulating student development toward these goals using a series of developmental continuums. These continuums are then used to track progress and are overlaid on whatever tasks and work individual teachers give to students.

The science profiles cover the strands of: earth and beyond, energy and change, life and living, natural and processed materials, and working scientifically. Each strand is divided into subareas called "organizers." For example the organizers for the strand of "working scientifically" are: planning investigations, conducting investigations, processing data, evaluating findings, using science, and acting responsibly. Each organizer is tracked through eight levels of development. For example, the organizer of "processing data" has "talks about observations and suggests possible interpretations" at Level 1, and "demonstrates rigour in handling of data" at Level 8.

There are lots of support materials that describe what each strand means, how to organize instruction, types of activities to use with students, and how to use the profiles to track progress. Some samples of student work are included to illustrate development. The documents say that the levels have been "validated," but this information is not included in the materials we received. (220 pp)

Science Final Exam	Baker Middle School, Montgomery Co.	(301) 253-7010

Mr. Richard Knight
Science Resource Teacher
25400 Oak Drive
Damascus , MD 20872

Publication Date: 1994

Description: Students are given two days. Day 1 they work in groups to share ideas. Day 2 they work individually to finalize the report. The students have had no previous instruction on the topic. They must do background research and then collect data, construct a graph and interpret the data to verify the information from this research. The basic format is problem, research, hypothesis, procedure, observations, and conclusion.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Science for Seven-Year-Olds in England and Wales	National Foundations for Educational Research	(0753) 574123

Dr. Chris Whetton **Publication Date:** 1991-1993
Head of Research Operations, Dept of Assessment and Measurement
The Mere, Upton Park
Slough, Berks , England S11 2DQ

Description: Information for this review comes from a series of documents that describe the history of the project from 1990 to the present: "Science For Seven-Year-Olds in England and Wales" (Whetton, NFER, 1991); "Standard Assessment Tasks for Key Stage 1" (NFER, 1991); "The Pilot Study of Standard Assessment Tasks for Key Stage 1" (Whetton, Ruddock, Hopkins, NFER, 1991); "Performance Testing and Science Education in England and Wales" (Wynne Harlen, in G. Kulm and S.M. Malcom, eds., "Science Assessment in the Service of Reform," AAAS, 1991); "National Assessment in England and Wales" (Whetton, Sainsbury, Hopkins, Bradley and Greig, NFER, 1992); "1992 Key Stage 1 Standard Assessment Task Teacher's Pack" (NFER, 1992); "An Evaluation of the 1992 National Curriculum Assessment Report and Appendices" (NFER, 1992); "An Evaluation of the 1992 National Curriculum Assessment Report" and appendices for special populations (NFER, 1992); and "1993 Key Stage 1 Standard Assessment Task Teacher's Pack" (NFER, 1993). The actual assessment materials for 1991, 1992 and 1993 are included in the three "Standard Assessment Task" documents. The other documents present technical information and modifications that were planned for subsequent assessments.

The on-demand assessments consist of a combination of hands-on and paper and pencil activities for primary students. There are both short-answer and more extended responses. Some activities are scored for the correctness of the answer and some are scored for correctness of approach or explanation. The assessment is done in large or small groups depending on the exercise. For example, in the 1991 assessment, one activity in math entailed placing packages in order by size (scored on correctness of response), and another had students play store (scored for ability to use coins, weigh items correctly, and use correct measurement terms). One task in science entailed considering which objects float and which sink (scored on ability to make predictions, provide reasonable explanations, complete a data chart, etc.). In the 1993 assessment, one math task was to add and subtract using a small number of objects (student must get three of four correct); one science task has students draw pictures or verbally explain what forces are acting on a raft as it floats on the water (scored correct if the student conveys the

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Science II Pre/Post Test	Fort Worth Independent School District	(817) 871-2531; FAX (817) 871-2548

Dr. Virgil G. Heard
Program Director for Science
100 North University
Fort Worth , TX 76107

Publication Date: 1992

Description: The state of Texas recently provided school districts with the option of replacing traditional subject area courses with thematic, coordinated courses that integrate the life sciences, earth sciences, and physical sciences. A prototype Science II Pre/Post Test was developed to compare effects on student learning of implementing this approach (Science I and II) to a more traditional subject area approach to teaching science. It was administered to about 500 eighth graders in four pilot and three control schools.

There are two parts to the test: 40-50 multiple-choice questions, and 8-9 laboratory stations. All questions are open-response. All responses are scored electronically.

A report of the test results (8 pages) and a copy of the test (21 pages) is available from the sponsoring agency and SEDL (see LNP contact list). No answer key is provided. Information is also available in the October 1992 issue of the Satellite Science Teachers Association of Texas Journal. Educators may copy materials.

Title of Assessment	Organization	Phone
Science Lab Report (PreK-8)	Victoria Independent School District	(512) 578-0171 (work)

Ms. Martha "Marty" Pedersen
District Science Facilitator
P.O. Box 1759
Victoria , TX 77902

Publication Date: Unpublished

Description: This teacher-developed K-8 assessment offers a concise format for a lab report that includes student development of a definition based on experiential learning, assignment of tasks, student predictions of outcomes, observations (in both graphic and written form), and a section requiring students to reflect on what has been learned during the activity. Single sheets of paper are folded either in halves or thirds, with all information to be assessed contained on this sheet. Reports are scored individually. Scoring is accomplished via a checklist of aspects present. Sample lab formats are available at no cost from SEDL. Educators may copy materials.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Science Performance Assessment	Chicago Public Schools	(312) 535-4000

Dr. Carole Perlman
Director, Student Testing
1819 W. Pershing-- 4 West (N)
Chicago . IL 60609

Publication Date:

Description: The goal of this assessment was to determine students' ability (1) to use the process and technology of science to conduct an experiment, and (2) to relate their findings accurately. Among the nine items developed for the science performance assessment, six (Transfer of Energy, Seeds, Friction, Mystery Boxes, Salt or Tap Water, and Rocks) are sixth grade items and three (Floating Object, an Object's Density, and More About Air) are eighth grade items. To facilitate performance-based assessment, students need to have acquired some experience in carrying out such activities.

A total of 350 sixth and eighth graders from 6 Chicago public schools participated in the pilot testing of the science performance assessments. Tasks were reviewed for face validity, classroom teachers' suggestions were used to revise tasks, and interrater reliability studies were done. Results of the study can be obtained from the contact person. The materials included in this assessment are low cost and can be reused. Testing may take place in the science lab or regular classroom, depending on available school facilities. The average completion time for each item is about 10-15 minutes. Scoring rubrics were developed for each task and are attached with this document.

Title of Assessment	Organization	Phone
Science Portfolio: Astrophysics	Illinois Mathematics and Science Academy	(708) 801-6070

Dr Michael Palmisano
Director of Assessment and Research
1500 West Sullivan Road
Aurora . IL 60506-1000

Publication Date: 1/26/93

Description: In this project, portfolios serve as developmental collections of students' work in an upper level physics elective. Students in grades 11 and 12 compile portfolios to represent their learning process. The teacher uses portfolios for assessing student learning and curriculum refinement. Scoring is both holistic and analytical and teacher reactions, but no technical data, are available.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Science Process and Manipulative Skills Assessment	School District 5 of Lexington & Richmond Counties	(803) 732-8000

Ms. Kitty Farnell
Coordinator of Science Education
1020 Dutch Fork Road, P.O. Box 938
Ballentine , SC 29002

Publication Date: 1992

Description: This fourth grade, science process skills assessment includes six stations (animals, light, weather, electricity, changing earth, and energy). These hands-on activities require students to answer a series of questions (both completion and open-ended). Scoring for each question ranges from 0 to 3 points based on specific expected responses.

A test specification matrix, task descriptions, student response sheets, scoring guides, and a student-by-item summary sheet are included. No sample student work nor technical information is included. (21 pp)

Title of Assessment	Organization	Phone
Science Process Evaluation Model	Schaumburg Community Consolidated District #54	(708) 885-6700

Mr. Larry Small
Science/Health Coordinator
524 E. Schaumburg Rd.
Schaumburg , IL 60194

Publication Date: 1992

Description: This summary is based on two documents: a paper presented at a national conference in 1988 which briefly describes Schaumburg's science assessment system, and a set of tests for students in grades 4-6 contributed in 1992. The on-demand tests have three parts: multiple-choice to measure content and some process skills, self-report to measure attitudes toward science, and hands-on to assess science process skills.

The hands-on portion attempts to measure 11 student science process skills: observing, communicating, classifying, using numbers, measuring, inferring, predicting, controlling variables, defining operationally, interpreting data, and experimenting. Tasks consist of students using manipulatives to answer fixed questions such as: "Which drop magnifies the most?" or "Which clay boat would hold the most weights and still float in the water?" Students respond by choosing an answer (multiple-choice), supplying a short answer, or, in a few cases, drawing a picture or graph.

Complete tests for grade 4-6 are included. No scoring procedures or technical information are included.
(105 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Science Regents Competency Test -- NYSTP	New York State Education Department	(518) 474-5900

Ms. Mary Corrado
Coordinator of Test Development Activities
Room 760-EBA
Albany , NY 12234

Publication Date:

Description: This statewide student science competency test is based on the information bulletin, Regents Competence Testing Program in Science, which outlines those science understandings and process skills students should know by the end of grade 9. Students will have studied these outcomes in life, physical, and earth sciences in the middle/junior high school grades. The test is composed of 70 items, sampling situations from the various sciences, as well as science/technology/society. Most of the items are multiple-choice, but at least one item requires a constructed response. If students pass this test, or a more advanced Regents science exam, plus successfully earn two credits of senior high school science, they will have met the state science requirements.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Science -- Standard Grade	Scottish Examination Board	(031) 663-6601

Mr. G. Dawson
Examination Officer
Ironmills Rd., Dalkeith, Midlothian
Edinburgh , Scotland EH22 1LE

Publication Date: 1993

Description: The Scottish Examination Board prepares end-of-course tests for a variety of high school subjects to certify level of student competence. The course syllabus for General Science calls for coverage of: healthy and safe living, an introduction to materials, energy and its uses, and a study of environments. Goals are knowledge, problem solving, practical abilities (science process skills), and attitudes. (Only the first three are assessed.) There are two main parts to the assessment for General Science--on-demand written tests (developed by the Examination Board) and classroom embedded hands-on performance assessments (conducted by teachers according to specifications developed by the Examination Board). The two parts are combined to grade (rate) student competence on a scale of 1-7. (Separate ratings are given overall and for each of the three goals.)

Written tests, developed each year, cover knowledge/understanding and problem solving in the content areas outlined in the syllabus. Three levels of the test are available: Foundation, General, and Credit. Students getting about 50% right on the Foundation level obtain a rating of 6; about 80% right gives a rating of 5. Likewise percent right on the General level give ratings of 4 or 3, and percent right on the Credit level give ratings of 2 or 1. ("1" is the highest rating.) All questions are short answer or multiple-choice and are scored for degree of correctness of the answer.

The performance assessments cover techniques (students must demonstrate competence in eight areas such as "measuring pH") and investigations (students are scored for "generative skills," "experimentation skills," "evaluation skills," and "recording and reporting skills" on each of two investigations). Students prepare written products. Scoring entails assigning points for various specified features of performance, such as 2 points for "clearly identifying the purpose of the investigation in terms of the relevant variables."

The package of materials we received included the course syllabus, specifications for the written and performance assessments, and copies of the written tests for 1993. It did not include technical information or sample student responses. (100 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Second International Assessment of Ed Progress (IAEP)	Educational Testing Service	(609) 734-1526

Dr. Nancy Mead
Rosedale Rd.
Princeton , NJ 08541

Publication Date: 1992

Description: The information for this description of the performance assessment component of the Second International Assessment of Educational Progress on math and science was obtained from two sources: "Performance Assessment: An International Experiment" (Brian Semple, ETS, 1992), and assessment materials (administrator's manual, released exercises, and scoring guides) supplied by ETS. (Two other documents report on the more traditional, and larger, part of the assessment: "Learning Science," Archie Lapointe, Janice Askew, and Nancy Mead, ETS, 1992; "Learning Mathematics," Lapointe, Mead, and Askew, ETS, 1992.) In the on-demand performance assessment component, eight math and eight science tasks were given to a sample of thirteen-year-olds in five volunteer countries (Canada, England, Scotland, USSR, and Taiwan). This sample was drawn from the larger group involved in the main assessment. The purpose of the assessment was to provide an information base to participating countries to use as they saw fit, and to examine the use of performance assessments in the context of international studies.

The 16 hands-on tasks are arranged in two 8-station circuits. Students spend about five minutes at each station performing a short task. Most tasks are "atomistic" in nature; they measure one small skill. For example, the 8 math tasks concentrate on measuring length, angles, and area, laying out a template on a piece of paper to maximize the number of shapes obtained, producing given figures from triangular cut-outs, etc. Some tasks require students to provide an explanation of what they did. All 16 tasks are included in this document, although some instructions are abbreviated and some diagrams are reduced in size. The complete tasks, administration and scoring guides are available from ETS.

Most scoring is right/wrong; student explanations are summarized by descriptive categories. There is also observation of the products of students' work.

Student summary statistics on each task are included. There is a brief summary of teacher reactions, student reactions, the relationship between student performance on various tasks, and the relationship between performance on the multiple-choice and

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Second International Science Study	International Association for Evaluation of Educational Achievement	(716) 645-2455

Dr. Rodney Doran
Professor of Science Education
Graduate School of Education, SUNY at Buffalo
Buffalo , NY 14260

Publication Date: 1986

Description: The information for this description of the performance portion of the Second International Science Assessment (SISS) comes from the following reports: "Science Achievement in the United States and Sixteen Countries: A Report to The Public" (W. J. Jacobson and R. L. Doran, 1989, NY: Teachers College, Columbia University); "Science Process Skills in Six Countries" (P. Tamir & Doran, Studies in Educational Evaluation, Vol. 18); "Assessing Science Laboratory Process Skills at the Elementary and Middle/Junior High Levels" (I. B. Kanis, Doran, and Jacobson, SISS-USA, Teachers College, Columbia University, NY, 1990); and a dissertation by Maureen O'Rafferty entitled "A Descriptive Analysis of Grade 9 Pupils in the United States on Practical Science Tasks," (State University of New York at Buffalo, 1991). The dissertation was a re-analysis of some of the information from the SISS.

The optional process component of the SISS was intended to assess the ability of students to handle equipment, design experiments, make observations and draw conclusions. Six countries (Hungary, Israel, Japan, Korea, Singapore, and the US) administered the test. (The SISS also contained a multiple-choice portion and several surveys given to a larger sample of students.)

Two forms of the grade 9 tests were developed, each having three tasks. The three tasks on Form 9-B are: determining the density of a sinker, chromatography observation and description, and identifying starch and sugar. Form 9-A tasks are: using a circuit tester, identifying solutions by pH, and identifying a solution containing starch. Each task consists of a series of questions for the student to answer using the equipment provided. Form A has 11 total questions and Form B has 10. These questions asked students to plan and carry out a simple experiment, including manipulation of equipment and materials, observation, recording of data, and explanation of results. Each subquestion was classified into one of three categories of process skills: performing, reasoning, or investigating. The six tasks were set up at 12 alternating stations A, B, A, B, ...). Students had 10 minutes at each station, plus five minutes in between. So, 12 students could be tested each 45 minutes. There were some variations in testing among the six

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Situated Performance Assessment	Montana State University - Bozeman	(406) 994-5655/Fax (406) 994-3733

Dr. Gerald Kulm
Director of Evaluation and Assessment, STEP Project
401 Linfield Hall, Montana State University
Bozeman , MT 59717

Publication Date:

Description: The tasks are situated in four real-life and relevant contexts to engage students in grades 4-8 in the assessment process. The contexts are building a kite, reading information from a brochure about fat and cholesterol, planning a pizza party, and using a video. The tasks are designed to be appropriate for classroom use as assessments or instructional activities. The target questions from the tasks are scored using a rubric that involves scoring problem solving, operations, and conceptual understanding of mathematics. Each trait was scored on a scale from 0 (blank) to 4 (an extended response) for each category. The tasks were designed to be administered in one class period, including a "pre-assessment" familiarization process to the various contexts before the administration. Educators may copy materials. Available from developer for $10.00 copying and postage charges.

Title of Assessment	Organization	Phone
Sixth Grade Student Learning Assessment in Mathematics	Project TEAMS -- Ohio Valley Educational Cooperative	(502) 222-4573

Ms. Jan Broyles
Project TEAMS Coordinator
205 Parker Drive
LaGrange , KY 40031

Publication Date: 12/15/92

Description: This Eisenhower-funded instrument consists of four sections. They are: computation and fraction comparison, short answers, open-ended questions, and interviews. The materials were designed by a committee of middle school teachers as part of a professional development effort. Materials were field tested and revised based on the results of the field test. Answer sheets are included for two of the sections.

Title of Assessment	Organization	Phone
Small-Scale Chemistry for Laboratory Assessment	ACS Div CHED Examinations Institute	(803) 656-1249

Dr. Lucy Pryde Eubanks
Associate Director
223 Brackett Hall. Clemson University
Clemson , SC 29631-1913

Publication Date: TBA

Description: The laboratory part of chemistry courses is considered essential by most chemistry teachers, yet few attempt to assess laboratory learning by anything other than paper and pencil means. The ACS Div CHED Examinations Institute has begun a project to design a test bank of lab-practical questions using small scale laboratory methods for high school chemistry courses. Laboratory Assessment Tasks allow a teacher to assess a student's ability to use laboratory thinking skills to solve a problem. They also demonstrate that it is possible to use lab-practical problems to quickly gain information about a student's working knowledge of acid base chemistry and their ability to apply this knowledge to a problem situation. This combination of chemical knowledge and the practical skills necessary to apply the knowledge to solve a problem is the essence of what we assume the laboratory experiments really teach. Small-scale assessment problems can provide us with a set of tools to test this assumption. Preliminary work from this project will appear in the fall 1994 issue of ChemUnity News, an ACS publication. (7 pp)

South Dakota Mathematics Study: Grade 12	Mid-Continent Regional Educational Laboratory-McREL	(303) 337-0990

Dr. John Kendall
Senior Associate
2550 South Parker Rd. Suite 500
Aurora , CO 80014

Publication Date:

Description:

South Dakota Mathematics Study: Grade 4	Mid-Continent Regional Educational Laboratory-McREL	(303) 337-0990

Dr. John Kendall
Senior Associate
2550 South Parker Road
Aurora , CO 80014

Publication Date:

Description:

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
South Dakota Mathematics Study: Grade 8	Mid-Continent Regional Educational Laboratory-MCREL	(303) 337 0990

Dr. John Kendall
Senior Associate
2550 South Parker Road
Aurora , CO 80014

Publication Date:

Description:

Student Assessment Using Student Research Projects	New Mexico State University-Las Cruces	(505) 646-3901; FAX (505) 646-6218

Dr. Douglas S. Kurtz
Professor of Mathematics, Dept. Chair
Department of Mathematical Sciences, New Mexico State University
Las Cruces , NM 88003

Publication Date:

Description: This prototype program (used in grade 9-university) is based on student research projects, which are multi-step assignments, lasting up to several weeks, that involve diverse problem-solving skills and demand well written solutions in grammatically correct prose. In the course of completing a project, students read, write and speak mathematics. Cooperative learning is used extensively. Students work in groups of three or four, interacting with and learning from each other, rather than trying to master everything individually. Students are introduced to scientific investigation as a means for developing higher-order thinking skills. All activities are consistent with the NCTM standards.

Assessment of student work is based on teacher evaluations of written reports. Work may be graded holistically or based on predetermined guidelines. Portfolios may be used in conjunction with the project. Some technical information is available.

The following documents are available from the developer or SEDL (see LNP contact list): (a) "Student Assessment Using Student Research Projects" (1 pg); (b) tasks and grade sheets entitled Rationally Renovated (2 pp.), Pythagorean Triples (3 pp.), and Revolutionary Solids (3 pp.); (c) tasks, grade sheets, and sample student responses for Deciphering Averages (14 pages) and Cloudcroft Tunnel (10 pp.); and (d) a mathematics project grading sheet with instructions (2 pp).

The authors are in the process of preparing a book compiling information on the student research projects, but grants permission to reproduce freely with source cited, or to reproduce up to 30 copies for research purposes.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Student Portfolio (Algebra)	Northwest Rankin Attendance Center	(601) 825-2522

Ms. Cynthia Wilkins
Teacher
62 Terrapin Hill Rd. North
Brandon , MS 39042

Publication Date: 6/94

Description: This assessment is a classroom portfolio project for algebra or pre-algebra. It is intended as a representation of all that has been learned during the year. A description of each entry is provided (e.g., math autobiography, concept explanation, journal topic, specific skills, etc.) along with suggested point values. It has been used for 7th and 8th graders taking algebra. Student directions are available (2 pages).

Title of Assessment	Organization	Phone
Superitem Tests in Mathematics	National Center for Research in Mathematical Sciences Education	(608) 263-3605

Dr. Thomas A. Romberg
Director, NCRMSE
1025 W. Johnson St.
Madison , WI 53706

Publication Date: ??

Description: The document we received is a set of 20 on-demand open-response tasks that are designed to measure the statistics, measurement and geometry knowledge of middle school students (grades 7-9). Each of the 20 tasks has a set of four questions, all of which have only a single correct short answer. From a sample problem, it appears that all responses are scored right/wrong using task-specific scoring guides.

The materials we received did not contain a description of which specific goals were covered by each question, sample student responses, scoring guides, contextual information, nor technical information. (80 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Surveys of Problem and Educational Skills	Educator's Publishing Service	

Dr. Lynn Meltzer
Professor of Pediatrics, Harvard Medical School
75 Moulton St.
Cambridge , MA 02138

Publication Date: 1987

Description: Although this is an individual, on-demand test published primarily for diagnosing learning disabilities for students aged 9-14, it has some interesting ideas that could be more generally applied. There are two parts to the test--a more-or-less standard, individualized, aptitude test, and a series of achievement subtests. The math subtest involves a fairly standard set of short-answer computation and short word problems. The interesting part comes in the scoring. Each problem is scored on choice of correct operations, ability to complete the word problem, efficiency of mental computation, self-monitoring, self-correction, attention to operational signs, and attention to detail (one point for evidence of each trait).

After the entire subtest is administered, the teacher is guided through an analysis of the student's strategies in completing the task--efficiency of approaching tasks, flexibility in applying strategies, style of approaching tasks, attention to the task, and responsiveness during assessment. (Each area is assigned a maximum of three points for the presence or absence of three specific features of performance. For example, under "efficiency" the student gets a point if he or she does not need frequent repeating of instructions, a second point if he or she implements the directions rapidly, and a third point if the he or she perseveres to complete the task. Examples of scoring are included.

A fair amount of technical information is included. This covers typical performance, factor analysis, interrater reliability, relationship to other measures of performance, and comparison of clinical groups.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
T2M3: Teachers Using Technology to Measure Mathematics Meaningfully	Science Education Department	(407) 768-8000 , ext. 8126

Dr. Kathy Kelly-Benjamin
Principal Investigator
Florida Institute of Technology, 150 W. University Blvd.
Melbourne , FL 32901-6988

Publication Date:

Description: The T2M3 (Teachers Using Technology to Measure Mathematics Meaningfully) Project is an NSF-funded program designed to identify mathematics teachers' potential for developing meaningful, dynamic, instructional assessment, given training, instruction, and guidance. Within the research community, it will increase our understanding of how capable teachers are of integrating assessment with instruction. It will also identify some of the ways that researchers, technology experts, and assessment experts can contribute to teachers' efforts to create integrated assessment materials. Research summaries will be available in June 1995.

Because new assessment techniques require new tools as well as new training, the teachers in T2M3 will use educational technology to address some of the increased demands dynamic and meaningful assessment place on teachers. Technological tools can provide the means for presenting a variety of assessment tasks. They can also help teachers record students' performance, for example, tracking the actions students take while forming, testing, and verifying hypotheses. The assessments developed by classroom teachers in the T2M3 Project will integrate the use of available technology.

At the conclusion of this two-year project (approximately June 1995), the 15 teacher-participants will have produced instructional/assessment modules for mathematics at the elementary, middle, and junior high school levels. These modules will be pilot-tested during the fall of 1994 in mathematics classrooms. Anyone wishing to pilot one or more of the modules may contact Paula S. Krist at the above address. A module with an evaluation page will be sent and your name will be placed on our mailing list for the complete module packet. Completed modules with student performance exemplars will be available at no cost by contacting us in June 1995.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Technology Curriculum Profile	Curriculum Corporation	(03)639-0699; FAX (03) 639-1616

Mr. David Francis
Executive Director
St. Nicholas Place, 141 Rathdowne St.
Carlton, Victoria , Australia 3053

Publication Date: 1994

Description: This review is based on "Technology--a curriculum profile for Australian schools," 1994. This represents the technology portion of a series of publications designed to reconfigure instruction and assessment in Australian schools. The project, begun in 1989, was a joint effort by the States, Territories and the Commonwealth of Australia initiated by the Australian Education Council.

The profiles are not performance assessments per se in which students are given predeveloped tasks. Rather, the emphasis has been on conceptualizing major student outcomes in each area and articulating student development toward these goals using a series of developmental continuums. These continuums are then used to track progress and are overlaid on whatever tasks and work individual teachers give to students.

The technology profiles cover the major strands of: designing, making and appraising, information, materials, and systems. Each strand is broken down into subareas called "organizers." For example, the organizers for "designing, making and appraising" are: investigating, devising, producing, and evaluating. Each organizer is tracked through eight levels of development. For example, "evaluating" goes from "describes feelings about own design ideas, products and processes" at Level 1 to "analyzes own products and processes to evaluate the effectiveness of methodologies used and the short and longer-term impact on particular environments and cultures" at Level 8.

There are lots of support materials that describe what each strand means, how to organize instruction, types of activities to use with students, and how to use the profiles to track progress. Samples of student work are included to illustrate development. The document says that the levels have been "validated," but this information is not included in the materials we received. (155 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Understandings and Misunderstandings of Eighth Graders of Five Chemistry Concepts	University of Oklahoma	(405) 325-4981

Dr. Michael Abraham
Professor
Dept Chemistry and Biochemistry
Norman , OK 93019

Publication Date: 1992

Description: The authors developed a series of on-demand performance exercises in order to study how well grade eight students understand five concepts in chemistry: chemical change, dissolution, conservation of atoms, periodicity, and phase-change. The information for this review comes from a paper published in the Journal of Research in Science Teaching, Vol. 29, 1992, pp. 105-120.

There are five problems, one associated with each concept. Each problem describes (and/or shows) a problem situation and asks one to three questions. Some questions require short answers and some require explanations of answers. Each response is scored on a six-point scale from "no response" to "specific misunderstanding" to "sound understanding" of the concept. The paper gives some examples of misunderstandings shown by the students.

The authors found that very few students really understood the concepts. They speculate that this may either be due to the nature of instruction (mostly textbook driven and little hands-on) or because students are not developmentally ready for the formal logic found in these concepts.

The paper reports some information on student status, and the relationship between scores on this test and another measure of formal logical thinking. Educators may copy materials.

Title of Assessment	Organization	Phone
Unit Plan	Christopher Newport University	(804) 594-7930

Dr. Linda Sanders
Assistant Professor
Education Department, Christopher Newport University
Newport News , VA 23606

Publication Date: 11/4/92

Description: Description is from the author. No materials were included with the information form.

Ten day unit plan developed by potential teachers during their methods course. Carries same grading value as final exam.

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Utah Core Performance Assessments -- Mathematics	Utah State Office of Education	(801) 538-7810

Dr. Barbara Lawrence
Specialist, Evaluation and Assessment
150 E. 500 S.
Salt Lake City , UT 84111

Publication Date: 1993

Description: The Utah State Office of Education has developed 90 constructed response items in mathematics, science and social studies (five in each of grades 1-6 for each subject) to complement multiple-choice tests already in place. Assessments are designed to match the Utah Core Curriculum. Although districts must assess student status with respect to Core Curriculum goals, the state developed assessments are optional.

The mathematics assessments are designed to measure six to ten of the following areas of student competence (depending on grade level): logical reasoning, number meanings, number operations, number representation, computation, estimation, algebra, data sets, probability, geometry, measurement, fractions, and patterns. Each task has several questions relating to the same theme. For example, a sixth grade task called "Lab Tech" has students do such things as: complete a number sequence (adding milliliters to a chemical solution every 10 minutes), and "You need to plant two kinds of seeds. You must have 12 pots of one kind of seeds and 18 pots of the other kind of seeds. You need to plant the same total number of each kind of seed. What is the least number of each kind of seed you could plant?"

Scoring is task-specific and based on the degree of correctness of the response. For example, in the "Lab Tech" example the student gets 3 points if he or she correctly completes the entire sequence. Points are totaled for each task and between tasks for each of the skill areas being assessed. Four levels of proficiency on each skill are identified: advanced, proficient, basic and below basic. Cut scores for each level are based on percent correct (approximately 90%=advanced, 70%=proficient, 40%=basic, below 40%=below basic) and behavioral descriptions of performance at each level.

Assessment activities are bound in books for each grade level/subject. Each task includes teacher directions, student test taking materials, and scoring guides. The Office of Education has collected information on teacher reaction to the assessments from the field tests. No other technical information is available at this time. A training video is available which helps teachers use the assessments. (650 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Utah Core Performance Assessments -- Science	Utah State Office of Education	(801) 538-7810

Dr. Barbara Lawrence
Specialist, Evaluation and Assessment
150 E. 500 S.
Salt Lake City , UT 84111

Publication Date: 1993

Description: The Utah State Office of Education has developed 90 constructed response items in mathematics, science and social studies (five in each of grades 1-6 for each subject) to complement multiple-choice tests already in place. Assessments are designed to match the Utah Core Curriculum. Although districts must assess student status with respect to Core Curriculum goals, use of the state-developed assessments is optional.

The science assessments are designed to measure four general process skills: identify/describe, explain/infer, organize, and create. Each task has several questions relating to the same theme. For example, one grade 3 task takes students through a simulated walk in the woods. A series of activities asks students to do such things as: "Color an animal and its surroundings in a way that shows how the animal uses camouflage...;" and "Next to each animal paste the picture of an animal or animals likely to use that shelter." Most student responses are short (some are multiple-choice); the longest are no more than a paragraph.

Scoring is task-specific and based either on getting the correct answer (e.g., the score for pasting animals next to shelters is 0-3 depending on how many are done correctly) or quality of the response (e.g., the score for camouflage is 0-2, where 2 is "student colors one of the animals in a way that enhances its camouflage" and 1 is "student partially addresses the task.") Points are totaled for each task and between tasks for each of the four process skills assessed. Four levels of proficiency on each skill are identified: advanced, proficient, basic and below basic. Cut scores for each level are based on percent correct (approximately 90%=advanced, 70%=proficient, 40%=basic, below 40%=below basic) and behavioral descriptions of performance at each level.

Assessment activities are bound in books for each grade level/subject. Each task includes teacher directions, student test taking materials, and scoring guides. The Office of Education has collected information on teacher reaction to the assessments from the field test. No other technical information is available at this time. A training video is available which helps teachers use the assessments. (650 pp)

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
Vermont Mathematics Portfolio Project	Vermont Department of Education	(802) 828-3135

Dr. Susan Rigley
Planning and Policy Department
120 State Street
Montpelier , VT 05602

Publication Date: 1991

Description: There are seven related documents from which we have obtained information about the Vermont Math Portfolio Project: "Looking Beyond The Answer--The Report of Vermont's Mathematics Portfolio Assessment Program," 1991; "Resource Book," 1991; "Teacher's Guide," 1991; "Grade Eight Benchmarks," 1991; "Grade Four Benchmarks," 1991; "The Vermont Portfolio Assessment Program: Interim Report on Implementation and Impact, 1991-92 School Year" (RAND, 1992); and "The Reliability of Scores from the 1992 Vermont Portfolio Assessment Program" (RAND, 1992). These provide the following information: the results of the 1991 pilot of the project in grades 4 and 8, what should go into a portfolio, detailed information about the scoring criteria for portfolio entries and the portfolio as a whole, tasks that invite student problem solving, many samples of student work that illustrate the various score points, information about teacher and administrator reaction to the project; information about reliability of scoring.

Students could choose whatever they wanted for their portfolios that showed their ability to problem solve in math. Portfolio entries were scored using a seven-trait analytical method: four problem solving and three communication. These were generalized criteria intended to be used across tasks and students. Whole portfolios were also examined in order to obtain information about curriculum and instruction. These criteria are also provided.

Surveys and technical information indicate that while educators in Vermont feel that the process has had a beneficial impact on instruction, inter-rater reliabilities on scoring were very low. The authors propose a number of possible reasons for the latter result including the need for more systematic training on scoring, the need for more standardization in procedures and tasks for students, and the need for more clarity in the scoring guides.

Title of Assessment	Organization	Phone
West Virgina -- STEP: Mathematics	West Virginia Department of Education	(304) 348-2651

Dr. Steve Beckelhimer
Assistant Director, Office of Student Support Services
Building 6 Room B-057
Charleston , WV 25305

Publication Date:

Description:

SCIENCE & MATH ALTERNATIVE ASSESSMENTS
Contact List with Description

Title of Assessment	Organization	Phone
What's Happening?	Pomperaug Regional School District 15	(203) 758-8250

Dr. Mike Hibbard
Teacher
P.O. Box 395
Middlebury , CT 06762

Publication Date: 1991

Description: This review is based on several documents: three sets of handouts from various in-service and conference presentations ("Region 15: Together For Students, A Community of Learners," "Region 15 Schools: Assessing Writing Performance Tasks & Portfolios," and "What's Happening?"), and a paper submitted for an upcoming book from ASCD on performance assessment in the context of restructuring ("Self-Assessment Using Performance Task Assessment Lists").

Region 15 staff have worked for seven years to define the most important products (such as graphs) and performances (such as oral presentations) which students should be able to make and do. "Lists" (rubrics), developed for each skill at the elementary, middle and high school levels, describe the salient features of performance and are used for grading and student self-assessment.

The documents listed above contain an overall description of the "lists" and how they are used, plus several examples of lists and sample performance tasks. Science and math examples include: chemical reactions, plant growth, graphing, and writing in science.

The assessments were designed for classroom use. No technical information nor sample student performances are included. (230 pp)

Title of Assessment	Organization	Phone
Work Keys Assessment Component	ACT Center for Education and Work	(319) 339-3027

Dr. L. Kate Ulmer-Sottong
Assistant Director, Client Services
2201 North Dodge St. P.O. Box 168
Iowa City , IA 52243

Publication Date:

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